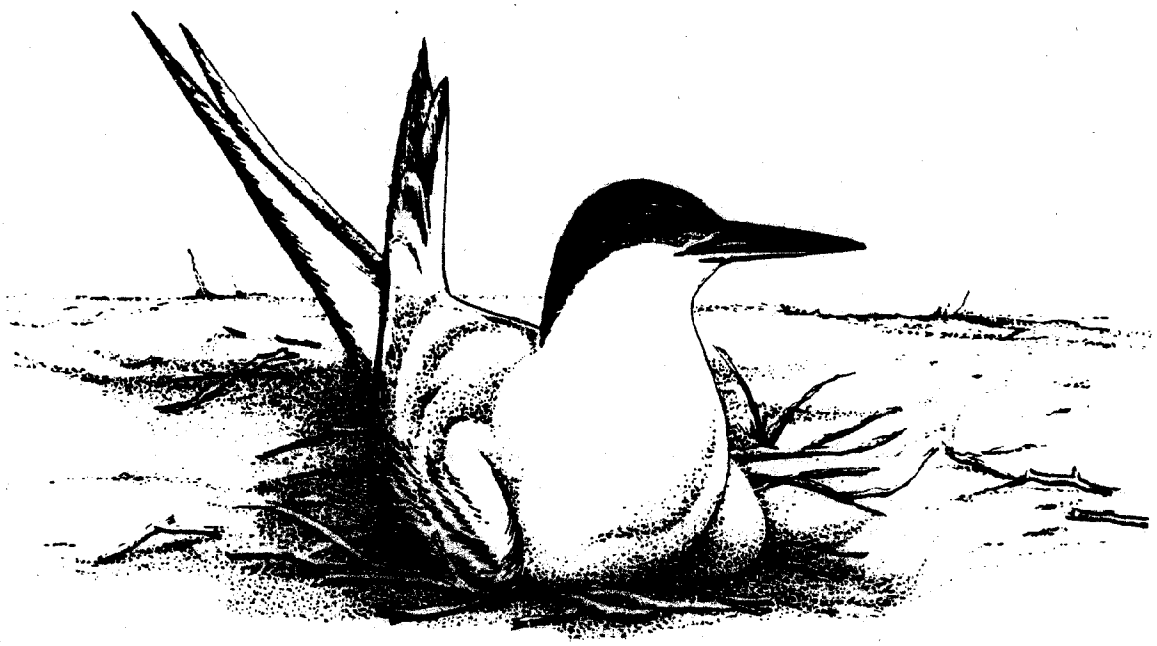
ROCKY BAYOU

AQUATIC PRESERVE MANAGEMENT PLAN



1991

DEPARTMENT OF NATURAL RESOURCES

ROCKY BAYOU

AQUATIC PRESERVE MANAGEMENT PLAN

ADOPTED

DECEMBER 17, 1991

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Executive Director

Florida Department of Natural Resources

This plan was prepared by staff of

Division of State Lands
Bureau of Submerged Lands and Preserves
Northwest Florida Aquatic Preserve Field Office

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EXECUTIVE SUMMARY

The Rocky Bayou State Park Aquatic Preserve is recognized as an exceptional water resource of the State. The preserve is the smallest of the 42 aquatic preserves in Florida, encompassing 480 acres.

This aquatic preserve provides food and habitat for numerous fish, reptiles, birds, and benthic invertebrates. Several designated species are known to occur in the preserve. Even though residential development occurring along the preserve's upland boundary is relatively light, the preserve is impacted by human activities. The preserve is partially bordered by Eglin Air Force Base. Land owned by the federal government is undeveloped and does not appear to be a threat to the preserve.

Submerged lands are selected as aquatic preserves based upon their outstanding biological, aesthetic, and/or scientific values. Rocky Bayou State Park Aquatic Preserve was designated as such in 1970 for the primary purpose of preserving the biological resources in the area and maintaining these resources in an essentially natural condition. The preserve is located in Okaloosa County, Florida.

The main objective of the resource management program for Rocky Bayou State Park Aquatic Preserve is to protect the preserve's natural resources for the benefit of future generations. The management of the preserve will be directed toward the maintenance of essentially natural conditions. On site management activities include actions by field personnel to protect plant communities, animal life, geologic features, archaeological sites, and water resources of the preserve. Management activities will also focus on cumulative impacts and encroachments.

The Rocky Bayou State Park Aquatic Preserve has been divided into several management areas. The classification of each management area is based upon the resource value of submerged lands associated with existing and future land uses on the adjacent uplands. The intent of these management areas is to make potential development activities and uses of the preserve compatible with resource protection goals. The major uses of this preserve are recreational fishing, boating, skiing, swimming, adjacent land uses and their attendant facilities (e.g. docks etc.). Maintaining the continued health of the preserve involves minimizing adverse impacts from all uses within and adjacent to the preserve.

This management plan outlines the relationship between the Department of Natural Resources' central office and field staff. Criteria for the review of specific development proposals within the preserves' boundaries are also provided. Public and private uses that are allowable pursuant to statutory direction and other applicable authorities of the aquatic preserve are discussed. These uses are subject to the approval of the Board of Trustees or their designee. Approval is normally predicated upon demonstration that the proposed use is environmentally sound, and in the opinion of the Board, necessary for the public.

Various federal, state, regional, and local organizations oversee laws and regulations which apply to all of the lands and waters within the aquatic preserve. One of the aquatic preserve management program's objectives, therefore, is to compliment agency programs whenever it is in the preserve's interest. Both field personnel and central office staff will coordinate extensively with many agencies to assure effective management and protection.

To enhance management and protection of the aquatic preserve, research and education programs will be developed. These programs will operate in close coordination with similar programs established in the area. Research and education needs for the aquatic preserve are defined.

The management of the preserve and protection of the resources included within its boundaries will be enhanced by continually identifying and resolving specific program needs. Meeting these needs, which may include legislative support, administrative rule changes, resource protection capabilities, and funding and staffing needs, will relieve some stress on the resources or personnel involved in the management of the preserve. In the future, the field staff will develop and submit a status report that summarizes the program's needs and suggests measures to be taken to resolve these needs.

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Copies of the legal description of the Rocky Bayou Aquatic Preserve, as well as copies of Chapters 253 and 258, F.S., and Chapter 18-21, F.A.C., may be obtained from:

Bureau of Submerged Lands and Preserves
Department of Natural Resources
3900 Commonwealth Blvd.
Mail Station 125
Tallahassee, FL 32399-3000

CHAPTER I

INTRODUCTION

Rocky Bayou Aquatic Preserve is situated in the northern panhandle of the state in Okaloosa County (Figure 1). Designated as an aquatic preserve on November 2, 1970, this 480 acre bayou is the smallest of the 42 Florida aquatic preserves. The preserve encompasses all of the sovereignty submerged lands bordered on the north, east, and south by the "mean high water" line of Rocky Bayou, and bordered on the west by the easterly right-of-way line of State Road 20 (Figure 2).

Located along the northern edge of Choctawhatchee Bay, Rocky Bayou is a fresh to brackish water system, which receives freshwater input from two creeks, Rocky Creek and Turkey Creek, and several smaller steephead streams. Rocky Creek, which flows directly into the bayou, represents one of the only known habitats for the Okaloosa darter (Etheostoma okaloosae) which is federally listed as an endangered species.

Another designated species, the osprey (Pandion haliaetus), occurs in and around the aquatic preserve. Two ospreys, possibly a mated pair, have been observed in the area by the aquatic preserve manager. In addition, several osprey nests were located by rangers from Fred Gannon Rocky Bayou State Recreation Area just south of the preserve. One nest on the eastern boundary of the park was abandoned; this may be due to the proximity of the newly constructed Parkwood Estates residential development. Parkwood Estates is adjacent to the eastern border of both the recreation area and the aquatic preserve.

Other noteworthy features of the area are three "steephead" ravines within the recreation area. One of the steepheads has been impounded to create Puddin Head Lake. The second steephead has undergone little or no disturbance other than a paved road which crosses it via a culvert near the ravine's mouth. A residential subdivision (Parkwood Estates) and an elementary school have been constructed on the eastern boundary of the third steephead. Disruption of the stream's ecology has occurred as a result of clearing and untreated stormwater runoff from the subdivision and the school's stormwater retention pond which is located upgradient of the spring source of the steephead stream. Other steephead ravines around the bayou have also been impacted by human activity.

From Fred Gannon Rocky Bayou State Recreation area and from several residential areas along the northern and southeastern borders of the bayou, residents and visitors have access to a

host of water related activities, i.e. boating, water skiing, jet skiing, fishing and swimming.

The upland area to the northeast of the preserve is predominantly undeveloped military property known as Eglin Air Force Base. The area northwest of the preserve is experiencing an increase in residential development as the city of Niceville expands.

Habitat loss, increased impacts from recreational use, increased development, and water quality degradation have become major threats to this beautiful estuarine environment. As construction of the Choctawhatchee Bay bridge begins, increased development pressure will need to be addressed. Consequently, an integrated management program, by state, regional, and local governments, will be necessary to accomplish the goal of long term resource protection for the preserve and for those adjacent lands which have a direct impact on it.

Implementation of a management plan for the Rocky Bayou Aquatic Preserve is only one of the many steps that will be necessary to accomplish this goal. The plan will serve as a useful guide to the aquatic preserve field staff and others in maintaining the integrity of the preserves. As more information concerning the preserve is obtained and analyzed, management strategies in this plan will need to be adjusted accordingly.

Development of this phase of the management plan required collecting an inventory of resource information, coordinating with other management plans that have been developed for the area, and identifying resource problems and management issues related to the present and future uses of the preserve and the adjacent uplands. Supporting management initiatives were developed to be consistent with statutory authority and the overall intent of the Aquatic Preserve Program for ensuring that the submerged resources of the bayou remain for future generations to enjoy.

Fourteen management plans, covering 21 of the 42 designated aquatic preserves in the state, have been adopted by reference into existing aquatic preserves rule (Chapter 18-20, Florida Administrative Code). Eventually, this phased management plan will be incorporated into rule following its acceptance by the Board of Trustees of the Internal Improvement Trust Fund. As such, the criteria in this plan pertaining to the use of state-owned submerged lands will carry the same authority as current rule criteria.

Specifically, this plan is divided into chapters according to their management application:

Chapter II cites the statutory authorities upon which this resource management program and plan are built.

Chapter III provides a description of the area included in the Rocky Bayou Aquatic Preserve and details the physical and biological components of the preserve as well as cultural resources. Additional information includes the current and future uses of this preserve and use of the adjacent uplands.

Chapter IV delineates various management areas within this section of the preserve. These areas are defined by taking into account the biological resources, physical parameters, and the aesthetic value in conjunction with the use of the adjacent uplands.

Chapter V discusses specific needs and issues particular to the Rocky Bayou Aquatic Preserve. Management initiatives have been developed in addressing each need and/or issue.

Chapter VI outlines site-specific goals, objectives and tasks required to meet the management needs of the preserve for resource management, resource protection, research and environmental education.

Chapter VII identifies federal, state, regional, and local agencies, their authorities and programs, and how they relate and assist in protection and management of the preserve. It also identifies non-governmental organizations, interest groups, and individuals that can assist in management of the preserve.

Chapter VIII describes future staffing and fiscal needs necessary for providing effective management and protection of the preserve, as well as supporting research and environmental education.

Chapter IX outlines a monitoring program for recording and reporting resource changes, and establishes a tracking system for detailing the progress and accomplishments of the local program in resource management.

This plan was written by Elaine Martin of the Department of Natural Resources, Division of State Lands, Bureau of Submerged Lands and Preserves, Northwest Florida Field Office.

Figure 1 - Florida Aquatic Preserves

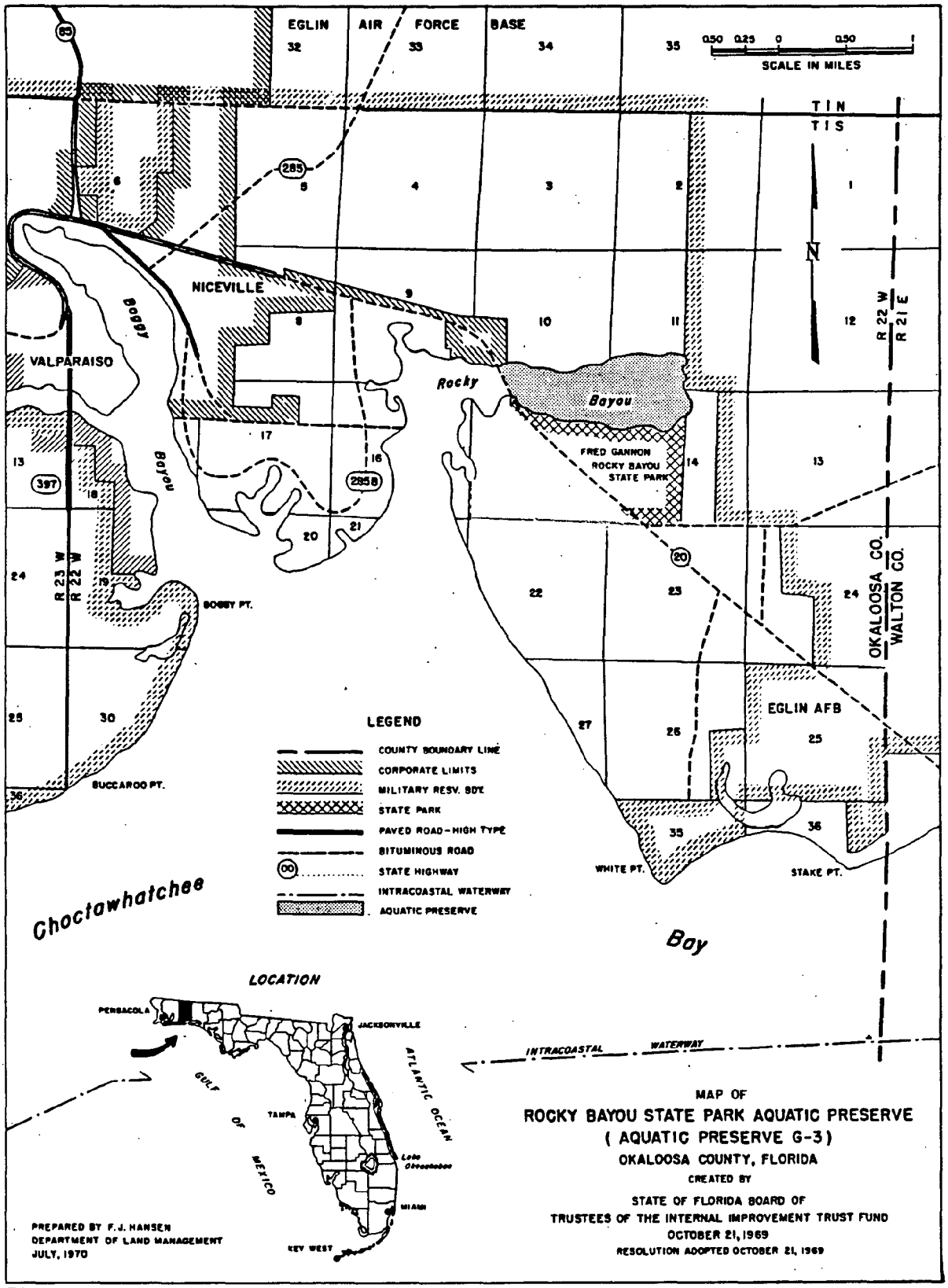

Figure 2 - Aquatic Preserve Boundary Map

CHAPTER II

MANAGEMENT AUTHORITY

A. STATUTORY AUTHORITY

The fundamental laws providing management authority for the Rocky Bayou Aquatic Preserve are contained in Chapters 258 and 253, Florida Statutes (F.S.). These statutes establish the proprietary role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, as Trustees over all sovereignty submerged lands. In addition, these statutes empower the Trustees to adopt and enforce rules and regulations for managing all sovereignty submerged lands, including aquatic preserves.

In particular, Sections 258.35-258.46, F.S., enacted in 1975 by the Florida Legislature, represent the **Florida Aquatic Preserve Act.** These statutes set forth a standardized set of management criteria for all designated aquatic preserves, and represent the primary laws governing use of sovereignty submerged lands within aquatic preserves.

The Legislative intent for establishing aquatic preserves is stated in Section 258.36, F.S.: **"It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations."** This statement along with the other applicable laws clearly mark the direction for management of aquatic preserves. Management will emphasize the maintenance of essentially natural conditions, and will include only sovereign or state-owned submerged lands and lands leased by the State and specifically authorized for inclusion as part of a preserve.

Management responsibilities for aquatic preserves may be fulfilled directly by the Board of Trustees or by staff of the Division of State Lands of the Department of Natural Resources through delegation of authority. Other governmental bodies may also participate in the management of aquatic preserves under appropriate instruments of authority issued by the Board of Trustees. The Division staff serve as the primary managers who implement provisions of the management plans and rules applicable to the aquatic preserves. Staff evaluate proposed uses or activities in the preserve, and assess the possible impacts on the natural resources. Project reviews are primarily evaluated in accordance with the criteria in Sections 258.35-46, F.S. (Florida Aquatic Preserves Act), Chapter 18-20, Florida Administrative Code (Rules of Florida

Aquatic Preserves), and in accordance with the policies set forth in this plan.

Staff comments on proposed uses are submitted for consideration in developing recommendations to be presented to the Board of Trustees. This mechanism provides a basis for the Board of Trustees to evaluate public interest and the merits of any project while also considering potential environmental impacts upon the aquatic preserves. Any activity located on sovereignty submerged lands will require a consent of use, a lease or easement, or other approval from the Board of Trustees. Consent of use may be granted on small projects from the Division of State Lands in accordance with the authority delegated by the Board.

BACKGROUND

The laws supporting aquatic preserve management are the direct result of the public's awareness and interest in protecting Florida's aquatic environment. The rampant dredge and fill activities that occurred in the late 1960's fostered this widespread concern.

In 1967, the Florida Legislature passed the Randall Act (Chapter 67-393, Laws of Florida), which established procedures regulating previously unrestricted dredge and fill activities on state-owned submerged lands. That same year, the legislature provided the statutory authority (Section 253.03, F.S.) for the Board of Trustees to exercise proprietary control over state-owned lands. Also, in 1967, government focus on protecting Florida's productive water bodies from development led the Board of Trustees to establish a moratorium on the sale of submerged lands to private interests. That same year, an Interagency Advisory Committee (IAC) was created to develop strategies for the protection and management of state-owned submerged lands.

In 1968, the Florida Constitution was revised to declare in Article II, Section 7, the state's policy of conserving and protecting natural resources and scenic beauty. That constitutional provision also established the authority for the legislature to enact measures for the abatement of air and water pollution. Later that same year, the IAC issued a report recommending the establishment of twenty-six aquatic preserves.

On October 21, 1969, the Governor and Cabinet acted upon the recommendations of the IAC and adopted, by resolution, eighteen of the water bodies as aquatic preserves, which included Rocky Bayou Aquatic Preserve. Other preserves were individually adopted at subsequent times through 1989.

B. ADMINISTRATIVE RULES GOVERNING AQUATIC PRESERVES

Chapters 18-20 and 18-21, Florida Administrative Code (F.A.C.), are the two administrative rules directly applicable to the uses of aquatic preserves specifically, and submerged lands in general. The general rules in Chapter 18-20, F.A.C., are supplemental to the rules in Chapter 18-21, F.A.C, in the regulation of activities in aquatic preserves.

1. CHAPTER 18-20, F.A.C.

Chapter 18-20, F.A.C., specifically addresses aquatic preserves and derives its authority from Sections 258.35, 258.36, 258.37, and 258.38, F.S. The intent of this rule is contained in Section 18-20.001, F.A.C., which states:

"(1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation including hunting and fishing where deemed appropriate by the board and the managing agency.

(2) The aquatic preserves which are described in Chapter 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392, and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) to preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) to protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) to coordinate with federal, state, and local agencies to aid in carrying out the intent of the Legislature in creating the preserves;

(d) to use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, and to assist in managing the preserves;

(e) to encourage the protection, enhancement, or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing man-made conditions towards their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserves;

(f) to preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, saltwater marshes, freshwater marshes, mud flats, estuarine, aquatic and marine reptiles, game and non-game fish species, estuarine, aquatic, and marine invertebrates, estuarine, aquatic, and marine mammals, birds, shellfish and mollusks;

(g) to acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserve;

(h) to maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large."

2. CHAPTER 18-21, F.A.C.

Chapter 18-21, F.A.C., controls activities conducted on sovereignty submerged lands in general and is predicated on the provisions of Sections 253.03, and 253.12, F.S. The stated intent of this administrative rule is:

"(1) to aid in fulfilling the trust and fiduciary responsibilities of the Board of Trustees of the Internal Improvement Trust Fund for the

administration, management, and disposition of sovereignty lands;

(2) to insure maximum benefit and use of sovereignty lands for all citizens of Florida;

(3) to manage, protect, and enhance sovereignty lands so that the public may continue to enjoy traditional uses including, but not limited to, navigation, fishing and swimming;

(4) to manage and provide maximum protection for all sovereignty lands, especially those important to public drinking water supply, shellfish harvesting, public recreation, and fish and wildlife propagation and management;

(5) to insure that all public and private activities on sovereignty lands which generate revenues or exclude traditional public uses provide just compensation for such privileges;

(6) to aid in the implementation of the State Lands Management Plan."

C. RELATIONSHIP TO OTHER APPLICABLE PLANS AND PROGRAMS

The State Comprehensive Plan, established by Chapter 187, F.S., provides long-range policy guidance for the orderly social, economic and physical growth of the State. As such, the State Comprehensive Plan provides direction for the management of the physical resources within the state. The goals, objectives and policies set forth in this aquatic preserve management plan are designed to be consistent with those in the State Comprehensive Plan that pertain to the water resources, coastal and marine resources and natural systems.

The Conceptual State Lands Management Plan, adopted on March 17, 1981, and amended by the Board of Trustees on July 7, 1981 and March 15, 1983, contains specific policies concerning spoil islands, submerged land leases, "Outstanding Native Florida Landscapes," unique natural features, seagrass beds, archaeological and historical resources, and endangered species. These policies provide some of the fundamental direction for formulating management plans and policies of the Aquatic Preserve Program.

The Local Government Comprehensive Plan (LGCP) for Okaloosa County is required by the Local Government Comprehensive Planning and Land Development Regulation Act to have a

comprehensive management plan with elements relating to different governmental functions (e.g., housing, physical facilities, conservation, land use, coastal zone protection, etc.) Each plan, in effect, is intended to guide the future development of each respective county. Cities and counties are to adopt land development regulations and conform to the criteria, policies, and practices of their comprehensive plans, which must be updated periodically as required by recent statutory amendments.

The intent of the Aquatic Preserve Program is to guide county governments during their planning process towards developing local planning criteria and standards that will be consistent with the objectives of the program. Okaloosa County's LGCP has been submitted to the state and will be implemented pending its review and adoption by the Department of Community Affairs.

CHAPTER III

DESCRIPTION OF AQUATIC PRESERVE

A. LOCATION AND BOUNDARIES

Rocky Bayou Aquatic Preserve is located in the southeast corner of Okaloosa County along the northern edge of Choctawhatchee Bay. It is bordered on the west by the easterly right-of-way line of State Road 20 and encompasses all of the sovereignty submerged lands below the mean high water line of Rocky Bayou east of SR 20.

The major population center adjacent to the preserve is the city of Niceville, which had a population of 11,083 in 1980. Directly to the south of the preserve is Fred Gannon Rocky Bayou State Recreation Area. On the northeast the preserve is bordered by relatively undeveloped land, most of which is part of Eglin Air Force Base Reservation. The southeast border of the preserve is adjacent to a residential subdivision (Parkwood Estates) which is presently under construction.

B. PHYSIOGRAPHY AND GEOLOGY

Rocky Bayou Aquatic Preserve lies in the physiographic division known as the Gulf Coastal Lowlands. The Coastal Lowlands extending across the southern half of the panhandle consist of generally flat plains sloping gently to the coast (Fernald and Patton eds., 1984). In the western end of the panhandle the Coastal Lowlands rise to form a high, sandy plateau which is characterized by coastal terraces, separated by the scarps which formed between them.

The Penholloway Terrace, rising 40 to 70 feet above sea level characterizes the geomorphology of the region encompassing the aquatic preserve (Wolfe et al., 1988). Rocky Bayou, itself, has some steep banks, with slopes extending down to depths 16 feet.

Another distinctive geological feature of Rocky Bayou Aquatic Preserve is the low bluffs which occur along the shoreline of the bayou. These bluffs, some of which are twenty feet high, continue to be undercut and eroded by wave action. This slow natural process continues to move the shoreline of the bayou back into the recreation area. Access stairs are maintained on the parks shoreline in order to prevent additional erosion of the bluffs by trampling (MacLaren, 1990).

The surface geography of the area is reported to be a result of a sharp rise in sea level 20,000 to 7,000 years ago. The

rise lasted for a relatively short period of time before the present sea level was established about 6,000 years ago. This sea level rise inundated the Pleistocene River valleys from the coastal embayments that are presently the bayous on the north side of the Choctawhatchee Bay (Wolfe et al., 1988)

The immediate vicinity of Choctawhatchee Bay, including the Rocky Bayou area, is composed of sand and clay deposits of Pleistocene and Tertiary age. The preserve lies in a geologic transitional zone between the clastic dominated coastal plain sediments and limestone dominated sediments of the Florida Peninsula sedimentary province. Major near surface lithologies of this zone are thick variable deposits of sand, gravel, and discontinuous clays which make up a sand and gravel aquifer extending to approximately 350 feet in depth.

The sand and gravel aquifer in the vicinity of the preserve is comprised of sediments that range in age from Miocene to Holocene. This aquifer extends beneath the land area surrounding Choctawhatchee Bay and extends from land surface to the top of the underlying Pensacola Clay confining bed. The Pensacola Clay confining bed consists predominantly of gray to bluish black and light brown calcareous clays. The material composing the Pensacola Clay is described as a "material of relatively low permeability between the sand and gravel aquifer above and the Floridian aquifer below..." (Trapp et. al., 1977).

Below the deepest Miocene Age aquiclude within the sand and gravel aquifer, the sandy limestone and shell fragments of the Upper Floridan aquifer are present. The Upper Floridan aquifer system is separated from the Lower Floridan aquifer by an extensive clay bed known as the Bucatunna Clay. The Bucatunna is present up to 15 miles north of Fort Walton Beach in Okaloosa County. The confining bed dips south-southwest at about 25 feet per mile, to a depth of 600 to 1,000 feet below sea level. In southern Okaloosa County this confining bed consists of silty, sandy calcareous clay, with occasional thin beds of dark gray clay (Barr, 1983).

The confining unit, located just below the Floridan aquifer system, contains thick, but irregular zones of gray, hard, slightly calcareous, silty-clay shale as much as 300 feet thick. This is material of the Middle Eocene Age.

C. SURFACE WATER HYDROLOGY

The fundamental unit of surface hydrology is the drainage basin. A drainage basin consists of that area which drains surface runoff to a given point (Wolfe et al., 1988). Rocky Bayou Aquatic Preserve is part of the Choctawhatchee Bay drainage basin (Wolfe et al., 1988), but it is also the

receiving waterbody for the Rocky Bayou drainage basin (Livingston, 1986). Rocky Bayou drainage basin receives runoff from 26,815 hectares of surface area within Okaloosa and Walton counties.

As drainage basins develop the frequency and magnitude of floods usually increases. Flooding is a necessary and useful part of an ecosystems energy flow, but if flood levels exceed what is needed to maintain the ecosystem, destruction of improper development may take place. In order to maintain the integrity of the preserve ecosystem excessive flooding must be controlled by enforcement of prudent construction practices. Minimizing vegetation removal, prohibiting ditch and drain operations as well as dredge and fill construction (particularly in wetland areas), and tightly controlling construction and development in floodplain areas are all necessary measures to prevent excessive flooding (Wolfe et al., 1988) which may result in destruction of the preserve.

There are two major streams, Rocky Creek and Turkey Creek, and several steephead streams that provide freshwater input to this system. Rocky Creek and Turkey Creek have a high base flow which is attributed to seepage from the sand and gravel aquifer (Wolfe et al., 1988). The freshwater input from these creeks and streams has allowed the bayou to maintain its fresh to brackish salinity; average surface salinity of 8.3 ppt and average bottom salinity of 20.5 ppt (Livingston, 1986). The low salinity of the system has had a strong effect on the biotic communities of the preserve. This effect is evidenced by the wide variety of freshwater and brackish water vegetation which is present along the shoreline.

Tidal energy in the Choctawhatchee Bay/Rocky Bayou system is generally very low. Water velocities rarely exceed 1 foot per second, with the most rapid velocities in the eastern portion of the system. This system is also characterized by a low tidal range of 0.6 of a foot. During warm periods of the year there is very little vertical mixing. The lack of strong vertical mixing causes stagnation and water quality degradation during various times of the year.

On May 12, 1991, Puddin Head Lake (a previously impounded steephead stream) broke through its dam and emptied into Rocky Bayou. If the dam is not repaired the "freed" steephead stream will return to its original path and be another source of freshwater into the aquatic preserve.

D. CLIMATE

The mild, subtropical climate of the Florida Panhandle is a result of its latitude (30° - 31° N) and the stabilizing effect of the adjacent Gulf of Mexico (Wolfe et al., 1988).

Summer heat is tempered by sea breezes along the coast and up to 50 km inland, as well as by the cooling effect of frequent afternoon thundershowers. A 10° to 20° drop in temperature is frequently the result of these storms. Summer average temperatures are usually in the low to mid 80's but they may range from the mid 70's to slightly over 100° F (Wolfe et al., 1988).

Winter temperatures may vary quite a bit due to the frequent passage of cold fronts. Temperatures rarely remain below freezing during the day and these fronts generally only last 2-3 days. Winter temperatures average in the mid to high 50's but they may range from single-digit lows in some years to the mid 70's during others (Wolfe et al., 1988).

Average monthly rainfall ranges from 2.99 to 7.88 inches, and there are two peak rainfall periods during the year. During the summer rainfall period, June through August, the average monthly rainfall is approximately 6.5 inches. During the late winter rainfall period, February through April, 5.25 inches of rain is the monthly average. Average annual rainfall for the panhandle area is approximately 60 inches per year (Fernald and Patton, 1984). Summertime showers are associated with convective thunderstorms and the wintertime showers are frontal related (Plaik and Kunneke, 1984).

E. WATER QUALITY

Due to its natural attributes the Rocky Bayou Aquatic Preserve was designated as an "Outstanding Florida Water" (OWF) on March 1, 1979. An OFW designation by the Department of Environmental Regulation (DER) places more stringent standards in the issuance of DER permits. Permit applications for activities that lower ambient water quality within designated OFW's are normally denied.

Very limited water quality monitoring has been conducted within the aquatic preserve boundaries. A state-funded, in depth ecological baseline study of the Choctawhatchee Bay system was conducted during 1985-86 (Livingston, 1986). Forty-eight stations were monitored during this study, and one of the stations was within the boundaries of Rocky Bayou Aquatic Preserve. The following water quality parameters were monitored at the Rocky Bayou station on a monthly basis from September 1985 through August 1986; Temperature, salinity, dissolved oxygen, pH, turbidity, color, fecal coliforms, total coliforms, chemical oxygen demand, ammonia, nitrites, nitrates, total Kjeldahl nitrogen, total nitrogen, ortho-phosphates, total phosphates, and phosphate to nitrogen ratio. The mean monthly values for these parameters and their yearly ranges are given in Livingston, 1986, (Appendix B).

At this time water quality in Rocky Bayou is good but increased development in the area is cause for concern. Clearing and construction of roads and stormwater sewers for a residential subdivision which is presently under construction on the eastern boundary of the preserve has contributed silt to one of the steephead streams which flows into the preserve. Stormwater "pop-off" valves from the sewers discharge directly into the steephead stream and impact preserve waters (MacLaren, 1990).

An elementary school has also been constructed at the eastern end of the preserve. The school's stormwater retention pond is located upgradient of the spring source of the same steephead stream. Percolation or overflow of water from this pond may have adverse impacts on the stream and the aquatic preserve (MacLaren, 1990).

The rupture of Puddin Head dam and the lake's spillage into Rocky Bayou will greatly effect the water quality within the system. Aquatic vegetation, wetland vegetation, mud, sand and other debris were washed from the area between the two bodies of water into Rocky Bayou as the lake was released from its shores. The extra nutrients and the silt introduced into the bayou may degrade its present water quality.

F. VEGETATION

Submerged Vegetation and Marsh Community

The shallow nearshore zone of the bayou, along the northeast, east and southern borders, is inhabited to a moderate extent by submerged and emergent aquatic vegetation. Some of these species are also sparsely scattered along the northern shoreline of the preserve, between the seawalls and docks of the single family dwellings. Vegetated communities are well established in the bends and pockets of the bayou and especially in the areas where Rocky Creek, Turkey Creek, and the steephead streams flow into the preserve.

The majority of the marsh community in the preserve is characterized by a diversity of co-dominant sedges (Cyperaceae), grasses (Poaceae), and rushes (Juncus spp.). This is primarily due to the extreme influence of freshwater from the creeks and streams which flow into the bayou, meeting a weaker saline tidal flow. This situation inhibits the growth of a true "saltmarsh" community of low plant diversity (Stout, 1989).

Some of the dominant emergent species include sawgrass (Cladium jamaicense), smooth cordgrass (Spartina alterniflora), saltmeadow cordgrass (Spartina patens), black needlerush (Juncus roemerianus), and giant reed (Phragmites

australis). A few scattered beds of widgeon-grass (Ruppia maritima) and tape grass (Vallisneria americana) represent the only submerged vegetation within Rocky Bayou.

Marshes usually have very distinct vegetation zones. Smooth cordgrass forms a border along the open water within the intertidal zone. This fringe may extend above mean high water (MHW). Landward of the cordgrass is black needlerush, usually comprising the largest vegetated zone and the bulk of the standing plant community (Soil and Water Conservation Society, 1989).

Important functions of marsh vegetation include stablization of the shoreline; providing food, cover and spawning habitat for fish, waterfowl and other wildlife; to serve as a detrital component for the preserve system; and adding scenic beauty to the shoreline.

Forested Wetland Community

Three areas along the border of the preserve also express the characteristics of the "wetland hardwood hammock" or "forested wetland" community. This community is a wetland forest on poorly drained soils, soils subject to constant seepage, or soils with high water tables.

The forested wetland has an evergreen appearance because it is dominated by laurel, live and water oaks. In many areas cedars are also one of the dominant evergreen species while sweetgum is the dominant deciduous species. Red maple, various bays, and cypress also occur in this community (Soil and Water Conservation Society, 1989).

This community supports a luxurious growth of vegetation with a diversity of species. Some of the species which characterize this community are: hawthorns (Craetaegus spp.), laurel oak (Quercus laurifolia), live oak (Quercus virginiana), red bay (Persea borbonia), sweetgum (Liquidambar styraciflua), magnolia (Magnolia grandiflora), sweetbay (Magnolia virginiana), waxmyrtle (Myrica cerifera), and saw palmetto (Serenoa repens).

Steephead Stream Community

Another unique type of community which exists in the aquatic preserve vicinity is that of the steephead ravine/stream.

Steepheads are highly distinctive stream valley habitats. Steepheads and their stream valleys are formed when ground water emerges on a sloping surface through porous sand at the head of a stream or catchment.

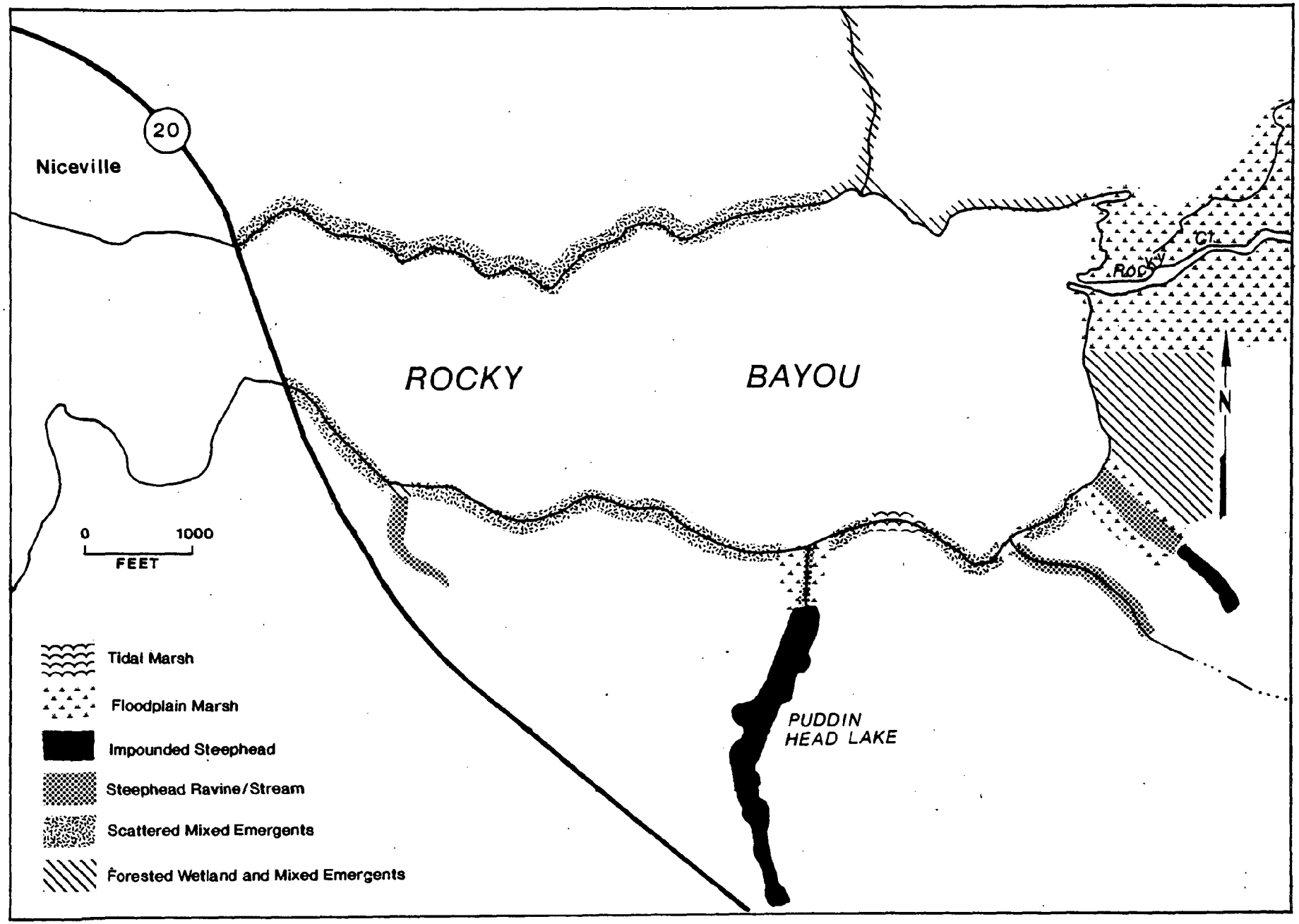

FIGURE 3: Vegetation Map

Because steepheads are highly localized phenomenon, known only from the Florida panhandle, they are rather isolated environments. Localization and isolation have resulted in populations of plants and animals that differ genetically from regional populations (Wolfe et al., 1988). Some species are uniquely adapted to the steephead environment, and are only found in the steephead stream/ ravine. Some of these rare species include the Okaloosa darter, dusky salamander and the Florida bog frog.

The steephead communities throughout the panhandle, including the steepheads which flow into Rocky Bayou Aquatic Preserve, generally possess a very similar cross-section of vegetation from the top of the basin they drain to the stream bed.

From the top of the ravine to about half way down the slope the steephead forest is a closed-canopy assemblage of xeric, deciduous trees. Species common to this area include mockernut hickory (Carya tomentosa), laurel oak (Quercus laurifolia), water oak (Q. nigra), and occasionally Eastern redcedar (Juniperus virginiana).

Halfway down the steephead slope a mesic type forest community is encountered. This area contains southern magnolia (Magnolia grandiflora), American beech (Fagus grandifolia), water oak (Q. nigra), white oak (Q. alba), swamp-chestnut oak (Q. michauxii), hophornbeam (Ostrya virginiana), pignut hickory (Carya glabra), and spruce pine (Pinus glabra).

The lower portion of the steephead slope, which is protected from the sun, exhibits the characteristics of an evergreen shrub zone. Within this zone shruby species such as sparkelberry (Vaccinium arboreum), mountain laurel (Kalmia latifolia), orange azalea (Rhododendron austrinum), fetterbush (Lyonia lucida), Florida anise (Illicium floridanum) and many others are found.

Due to the presence of innundated to saturated soils in the valley floor of the steephead, the vegetation changes from plants which are characteristic of an evergreen-shrub zone to plants which are characteristic of a wetland community, such as sweetbay (Magnolia virginiana) and numerous species of mosses and liverworts.

Table 1 (on page 24) is a list of aquatic and wetland vegetation species which are native to the marsh, forested wetland and steephead stream areas in and adjacent to Rocky Bayou Aquatic Preserve. Several illustrations of these vegetation species can be found in Appendix C.

TABLE 1:
NATIVE PLANTS OF ROCKY BAYOU AQUATIC PRESERVE

Common Name	Scientific Name
Pignut Hickory	Carya glabra
Mockernut Hickory	Carya tomentosa
Atlantic White Cedar	Chamaecyparis thyoides
Sawgrass	Cladium jamaicense
Hawthorns	Craetaegus spp.
American Beech	Fagus grandifolia
Black Needlerush	Juncus roemerianus
Eastern Redcedar	Juniperus virginiana
Mountain Laurel	Kalmia latifolia
Sweetgum	Liquidambar styraciflua
Fetterbush	Lyonia lucida
Southern Magnolia	Magnolia grandiflora
Sweetbay	Magnolia virginiana
Waxmyrtle	Myrica cerifera
Eastern Hophornbeam	Ostrya virginiana
Spoon Flower	Peltandra sagittifolia
Red Bay	Persea borbonia
Giant Reed	Phragmites australis
Spruce Pine	Pinus glabra
White Oak	Quercus alba
Laurel Oak	Quercus laurifolia
Swamp-chestnut Oak	Quercus michauxii
Water Oak	Quercus nigra
Live oak	Quercus virginiana
Needle Palm	Rhapidophyllum hystrix
Orange Azalea	Rhododendron austrinum
Whitetop Pitcher Plant	Sarracenia leucophylla
Saw Palmetto	Serenoa repens
Smooth Cordgrass	Spartina alterniflora
Saltmeadow Cordgrass	Spartina patens
Sparkleberry	Vaccinium arboreum
Tape grass	Vallisneria americana
Widgeon grass	Ruppia maritima

G. FISH AND WILDLIFE

The wildlife value associated with highly productive estuarine and marsh communities is extremely important. The linking of estuarine with freshwater environments forms a necessary habitat for the feeding and breeding of many species. Ranging from protozoa to mammals, the animal populations are of considerable variety. Some species are restricted to this semiaquatic semiterrestrial habitat, while others can be found in the upland communities surrounding the preserve. Tables 2-5 illustrate the wide range of fish and wildlife which are found within the aquatic preserve and its adjacent area.

Marsh animals exhibit zonation patterns similar to vegetation, due to habitat preferences. Environmental parameters affecting their distribution and zonation include salinity, inundation, substrate character, pH, oxygen level, light, humidity, and temperature as well as fire and wind.

The frequency of tidal flooding or proximity to tidally affected waters, as well as the availability of detritus, are two of the principal factors influencing the species diversity and density of aquatic and intertidal marsh organisms. In addition to providing an area of abundant food, the protective qualities of marsh areas provide reproduction and juvenile development habitat for many fish and small animal species.

Primary and secondary consumers such as amphipods, shrimp, crabs, clams, oysters, snails, worms, and fish feed on the abundant supply of detritus, plankton and animal protein that is generated from the marsh. Various rodents such as the marsh rice rat and the cotton mouse, and birds like rails, willlets, seaside sparrows, and marsh wrens, all utilize marshes and wetland areas as denning and nesting habitat. Other mammals such as the raccoon, opossum, marsh rabbit, and wading birds like herons and egrets frequent the marsh edges primarily to feed.

Partial destruction of habitat often breaks up productive ecological communities into smaller isolated subunits by destroying the vegetation which produces habitat continuity. These linkages or corridors allow for the necessary movement of wildlife that may by vital for specific breeding or foraging activities. Habitat disturbance and destruction are the major causes of decline and loss of species.

Benthic Macroinvertebrates

Benthic macroinvertebrates are indicators of sediment and water quality in aquatic systems. High numbers of benthic macroinvertebrates were taken by Livingston (1986) in Rocky Bayou. The distribution of organisms is determined by habitat characteristics, salinity gradients, nutrient dynamics, and pollution. The species collected indicate that Rocky Bayou is one of the few remaining unpolluted bayous in the bay..

Over 30% of the infaunal fauna consisted of oligochaetes. Polychaete worms were also common and were represented by Mediomastus ambiseta, Aricidea philbinae, Streblospio benedicti, Fabricia sp., Prionospio heterobranchia, Lepidactylus sp., Chione duneri, and Laeonereis culveri.

Epibenthic macroinvertebrates were dominated by pink shrimp (Penaeus duorarum) and blue crabs (Callinectes sapidus). Other dominants include periclimenid shrimp (Periclimenes longicaudatus), white shrimp (Penaeus setiferus), brown shrimp

(Penaeus aztecus), brief squid (Lolliguncula brevis), and the crab Portunus gibbesii.

Fish/shellfish

A very large number of finfish and shellfish families have been reported from the marshes, streams, creeks, bays and bayous of the Choctawhatchee Bay system. Members of sixty of these families spend some portion, if not all, of their lives within estuarine habitats similar to those of Rocky Bayou. Table 2 lists many of the species which may at some time in their lives inhabit the waters of the aquatic preserve.

The open water habitats associated with the bay system contain numerous species of commercial and recreational importance. The estuarine and marsh areas serve as "nursery grounds" for many of the juvenile and larval forms of these marine organisms. These include three shrimp species (brown, white, pink), ladyfish, spotted seatrout, red drum, silver perch, Atlantic croaker, spot, southern kingfish, gulf menhaden, striped mullet, and sheepshead (Wolfe et al., 1988).

Though many marsh species have little commercial importance, their diverse feeding habits and intense utilization of marsh resources makes them especially important in transferring energy from the marsh to the estuary and coastal waters and thus to commercially valuable species. Nursery species and marsh foraging species consume detritus, larval organisms, and plankton at the base of the food web in the marsh and then introduce this energy to the estuarine and nearshore food webs when they leave the marsh. Foraging carnivores also provide a trophic link between the marsh and adjacent ecosystems.

Fish species which may be found in Rocky Bayou Aquatic Preserve inhabit a variety of habitats. Pompano, blue runner, whiting and other forage and juvenile species which will use Rocky Bayou as nursery grounds can be found as adults in the sandy surf-zones of Choctawhatchee Bay and the Gulf of Mexico. Unvegetated, sand bottom habitats are inhabited by burrowing types such as flounder, stingrays, jawfishes, and inshore lizard fishes. Non-burrowing types consist of the sand perch, pigfish and spot. Mud bottom habitats are preferred by mullet, croaker, silver perch and catfish. Anchovies and silversides are important forage species and can be seen in the bayou's shallowest waters or at the surface where they feed. The grassbeds and tidal marsh areas have a diverse assemblage of fish populations including mullet, pinfish, needlefish, mojarra, seahorses, pipefish, blennies and gobies. "Hard" habitats such as piers, docks, artificial reefs and submerged sea walls may attract many of the "pretty" seasonal tropical species such as cocoa damsels, angelfishes, parrotfishes, spadefishes, and butterfly fishes. Wrasses,

groupers and snappers are also found along these hard substrates (Shipp, 1986).

In Florida, the number of species actually harvested either entirely or principally in the estuaries is surprisingly limited. But estuaries play a significant role in the production of many shellfishes and finfishes that ultimately are harvested mainly at sea. About 50 commercial and 30-65 recreational species caught in the Gulf of Mexico spend at least some portion of their lives in estuarine systems such as those within Rocky Bayou Aquatic Preserve. Seabasses, jacks, snappers, sheepshead, spot, mackerel, and flounders are a few examples of estuarine dependent species which may be taken either offshore in the gulf or in the estuary (Comp and Seaman, 1985).

The creeks and steephead streams draining into Rocky Bayou have very special fish of their own. The creek chub, (Semotilus atromaculatus) is often found within a few meters of the seeping waters of the steepheads. Rocky Creek and the steephead streams which flow into the bayou represent the only known habitats for a federally endangered species of fish, the Okaloosa darter (Etheostoma okaloosae).

TABLE 2:
FISH/SHELLFISH WHICH MAY OCCUR IN OR NEAR ROCKY BAYOU

Common Name	Scientific Name
Scrawled Cowfish	Acanthostracion quadricornis
Lined Sole	Achirus lineatus
Atlantic Sturgeon	Acipenser oxyrhynchus
Alabama Shad	Alosa alabamae
Orange Filefish	Aluterus schoepfi
Stripped Anchovy	Anchoa hepsetus
Bay Anchovy	Anchoa mitchilli
Longnose Anchovy	Anchoa nasuta
Ocellated Flounder	Ancylopsetta quadrocellata
Singlespot Frogfish	Antennarius radiosus
Sheepshead	Archosargus probatocephalus
Hardhead Catfish	Arius felis
Southern Stargazer	Astroscopus y-graecum
Silver Perch	Bairdiella chrysoura
Frillfin Goby	Bathygobius soporator
Gulf Menhaden	Brevoortia patrouns
Blue Runner	Caranx fusus
Jack Crevalle	Caranx hippos
Rock Seabass	Centropristis philadelphius
Black Seabass	Centropristis striata
Atlantic Spadefish	Chaetodipterus faber
Florida Blenny	Chasmodes saburrae
Stripped Burrfish	Chilomycterus schoepfi
Atlantic Bumper	Chloroscombrus chrysurus

Bay Wiff	Citharichthys siplopterus
Mexican Flounder	Cyclopsetta chittendi
Sand Seatrout	Cynoscion arenarius
Spotted Seatrout	Cynoscion nebulosus
Southern Stingray	Dasyatis americana
Bluntnose Stingray	Dasyatis sayi
Round Shad	Decapterus punctatus
Dwarf Sand Perch	Diplectrum bivittatum
Threadfin	Dorosoma petenense
Ladyfish	Elops saurus
Emerald Sleeper	Erotelis smaragdus
Okaloosa Darter	Etheostoma okaloosae
Fringed Flounder	Etropus crossotus
Round Herring	Etrumeus teres
Spotfin Mojarra	Eucinostomus argenteus
Skilletfish	Gobiesox strumosus
Darter Goby	Gobionellus boleosoma
Sharptail Goby	Gobionellus hastatus
Naked Goby	Gobiosoma bosci
Code Goby	Gobiosoma robustum
Smooth Butterfly Ray	Gymnura micrura
Scaled Sardine	Harengula pensacolae
Pearly Razorfish	Hemipteronotus novacula
Halfbeak	Hyporhamphus unifasciatus
Feather Blenny	Hypsoblennius hentzi
Channel Catfish	Ictalurus punctatus
Pinfish	Lagodon rhomboides
Spot	Leiostomus xanthurus
Longnose Gar	Lepisosteus osseus
Rainwater Killifish	Lucania parva
Red Snapper	Lutjanus campechanus
Grey Snapper	Lutjanus griseus
Tidewater Silverside	Menidia berylina
Southern Kingfish	Menticirrhus americanus
Northern Kingfish	Menticirrhus saxitilis
Clown Goby	Microgobius gulosus
Green Goby	Microgobius thalassinus
Atlantic Croaker	Micropogon undulatus
Large Mouth Bass	Micropterus salmoides
Planehead Filefish	Monacanthus hispidus
Stripped Bass	Morone saxatilis
Stripped Mullet	Mugil cephalus
Speckeled Worm Eel	Myrophis punctatus
Polka-dot Batfish	Ogocephalus radiatus
Leatherjacket	Oligoplites saurus
Crested Cusk-eel	Ophidion welshi
Gulf Toadfish	Opsanus beta
Pigfish	Orthopristis chrysoptera
Gulf Flounder	Paralichthys albigutta
Southern Flounder	Paralichthys lethostigma
Gulf Butterfish	Peprilus burti
Atlantic Threadfin	Polydactylus octonemus
Bluefish	Pomatomus saltatrix

Black Crappie	Pomoxis nigromaculatus
Atlantic Midshipman	Porichthys porosissimus
Blackfin Sea Robin	Prionotus rubio
Leopard Sea Robin	Prionotus scitulus
Bighead Sea Robin	Prionotus tribulus
Clearnose Skate	Raja eglanteria
Cownose Ray	Rhinoptera bonasus
Spanish Sardine	Sardinella anchovia
Large Scale Lizardfish	Saurida brasiliensis
Spanish Mackerel	Scomberomorus maculatus
Creek Chub	Semotilus atromaculatus
Bucktooth Parrotfish	Sparisoma radians
Southern Puffer	Sphoeroides nephelus
Northern Sennet	Sphyraena borealis
Atlantic Needlefish	Strongylura marina
Dusky Pipefish	Sygnathus floridae
Chain Pipefish	Sygnathus louisanae
Gulf Pipefish	Sygnathus scovelli
Spotfin Tonguefish	Symphurus diomedianus
Blackcheek Tonguefish	Symphurus plagiusa
Inshore Lizardfish	Synodus foetens
Florida Pompano	Trachinotus carolinus
Atlantic Cutlassfish	Trichiurus lepturus
Hogchocker	Trinectes maculatus
Southern Hake	Uryophycis floridanus
Atlantic Moonfish	Vomer setapinnis

Amphibians/Reptiles

A large number of reptile and amphibian species occur within the various habitats of the aquatic preserve. Table 3 lists the species of amphibians and reptiles which might be found within or adjacent to Rocky Bayou Aquatic Preserve.

Enough water is present in the preserve area to support the breeding of several different species of frogs, such as the southern leopard frog (Rana sphenocephala), the green tree frog (Hyla cinerea), and the spring peeper (Hyla crucifer). One frog species which is restricted almost exclusively to this area is the bog frog (Rana okaloosae), known from the wetlands along the margins of the steephead streams.

The five-lined skink (Eumeces fasciatus) and sometimes the coal skink (E. anthracinus) are common lizards while the green anole (Anolis carolinensis) and the ground skink (Scinella lateralis) are sometimes abundant at the margins of the wetland areas.

The American Alligator (Alligator mississippiensis), which is listed as a species of special concern by the Florida Game and Fresh Water Fish Commission, is also a common inhabitant of the marsh and wetland areas.

TABLE 3:
AMPHIBIANS AND REPTILES NATIVE TO ROCKY BAYOU AQUATIC PRESERVE

Common Name	Scientific Name
Florida Cricket Frog	Acris gryllus
Florida Cottonmouth	Agkistrodon piscivorus
American Alligator	Alligator mississippiensis
Green Anole	Anolis carolinensis
Common Snapping Turtle	Chelydra serpentina
Coal Skink	Eumeces anthracinus
Five-Lined Skink	Eumeces fasciatus
Mud Snake	Farancia abacura
Green Treefrog	Hyla cinerea
Southern Spring Peeper	Hyla crucifer
Squirrel Treefrog	Hyla squirella
Two-lined Salamander	Eurycea bislineata
Red Salamander	Pseudotriton ruber
Dusky Salamander	Desmognathus fuscus conanti
Banded Watersnake	Nerodia fasciata
Southern Chorus Frog	Pseudacris nigrita
Bronze Frog	Rana clamitans
Bog Frog	Rana okaloosae
Southern Leopard Frog	Rana utricularia
Ground Skink	Scinella lateralis
Gulf Coast Spiny Softshell	Trionyi spiniferus

Birds

A wide variety of wading birds, raptors, songbirds, and waterfowl frequent all habitat types within the preserve and its adjacent uplands. Table 4 lists the large number of bird species which inhabit the preserve sometime during the year.

Some of the more conspicuous wading birds found loafing or foraging in the marsh of emergent vegetation include: the great blue heron (Ardea herodias), least bittern (Ixobrychus exilis), and snowy egret (Egretta thula). Raptors such as the osprey (Pandion haliaetus) utilize basically all communities, nesting in large trees in the inner marsh and swamp forest and feeding in the bayou.

In the past the osprey population within the preserve area was quite large, but recently the numbers seem to be declining. There are few mating pairs present and several nests have been abandonded. The abandonment may be due to the proximity of a residential development which is being constructed on the eastern border of the preserve. Nest predation by crows is also a problem (Carl Schell, Park Ranger, pers. comm.).

Ducks are the major waterfowl species found in all vegetative communities within the preserve. Wood ducks (Aix sponsa) normally inhabit swamp forest and wetland areas, nesting in

tree cavities and consuming acorns as a primary food. They are usually year-round residents in this area. Other migratory ducks such as the scaup (Aythya marila), and the pintail (Anas acuta), may temporarily stop in the preserve during the winter.

TABLE 4: NATIVE BIRDS OF ROCKY BAYOU AQUATIC PRESERVE

Common Name	Scientific Name
Spotted Sandpiper	Actitus marcularia
Red-Winged Blackbird	Agelaius phoeniceus
Wood Duck	Aix sponsa
Green-Winged Teal	Anas crecca
Mallard	Anas platyrhynchos
Northern Pintail	Anas acuta
Blue-Winged Teal	Anas discors
Anhinga	Anhinga anhinga
Great Blue Heron	Ardea herodias
Redhead	Aythya americana
Greater Scaup	Aythya marila
American Bittern	Botaurus lentigenosus
Bufflehead	Bucephala albeola
Common Goldeneye	Bucephala clangula
Green Backed Heron	Buteroides striatus
Sanderling	Calidris alba
Semipalmated Sandpiper	Calidris pusilla
Dunlin	Calidris alpina
Great Egret	Casmerodius albus
Willet	Catoptrophorus semipalmatus
Semipalmated Plover	Charadrius semipalmatus
Killdeer	Charadrius vociferus
Wilson's Plover	Charadrius wilsonia
Black Tern	Chlidonias niger
Fish Crow	Corus ossifragus
American Coot	Fulica americana
Common Snipe	Gallinago gallinago
Common Loon	Gaxia immer
Herring Gull	Larus argentatus
Laughing Gull	Larus atricilla
Ringbilled Gull	Larus delawarensis
Bonaparte's Gull	Larus philadelphia
Hooded Merganser	Lophodytes cucullatus
Yellow-Crowned Night Heron	Nycticorax violaceus
Osprey	Pandion haliaetus
American White Pelican	Pelicanus erythrorhynchos
Double-Crested Cormorant	Phalacrocorax auritus
Black-Bellied Plover	Pluvialis squatarola
Pied-billed Grebe	Podilymbus podiceps
Horned Grebe	Podiceps auritus
Common Grackle	Quiscalus quiscula
Clapper Rail	Rallus longirostris scottii
American Woodcock	Scolopax minor

Least Tern	Sterna antillarum
Forster's Tern	Sterna forsteri
Common Tern	Sterna hirundo
Royal Tern	Sterna maxima
Sandwich Tern	Sterna sandvincensis
Greater Yellowlegs	Tringa melanoleuca

Mammals

The marsh and hardwood communities in the vicinity of the aquatic preserve provide habit for numerous mammlian species. White-tailed deer (Odocoileus virginianus), a popular game animal, frequents both areas, mainly because of the escape cover and browse provided (McWhite, 1984). Many other common hardwood forest and wetland inhabitants occur here, including the squirrel (Sciurus carolinesis), raccoon (Procyon lotor), and the beaver (Castor canadensis). The Florida black bear (Ursus americanus floridanus), a threatened species, also sparsely inhabits the area. Table 5 represents a list of the mammalian species which may be located within the vicinity of the Rocky Bayou Aquatic Preserve.

TABLE 5:
MAMMALS NATIVE TO ROCKY BAYOU AQUATIC PRESERVE

Common Name	Scientific Name
Beaver	Castor canadensis
Opossum	Didelphis marsupialis
Striped Skunk	Mephitis mephitis
Whitetailed Deer	Odocoileus virginianus
Raccoon	Procyon lotor
Eastern Mole	Scalopus aquaticus
Eastern Grey Squirrel	Sciurus carolinensis
Marsh Rabbit	Sylvilagus palustris
Grey Fox	Urocyon cinereoargenteus
Florida Black Bear	Ursus americanus floridanus

H. ENDANGERED, THREATENED AND SPECIES OF SPECIAL CONCERN

Table 6 provides a list of animal species assumed to be found at or in the vicinity of Rocky Bayou Aquatic Preserve. These species have been given legal protection pursuant to the U.S. Fish and Wildlife Service (USFWS) Endangered Species Act of 1973, the Florida Game and Fresh Water Fish Commission (FGFWFC) regulations, and the Florida Department of Agriculture (FDA) regulations.

Listed species may be classified as endangered (E), threatened (T), of special concern (SSC), or under review (UR) for such listing. Endangered species are those threatened with

extinction if deleterious factors affecting their populations continue. These are species whose numbers have already declined to such a critically low level, or whose habitats have been so seriously reduced or degraded that without active assistance, survival is questionable.

Threatened species populations, although not as critically stressed as endangered species, are also jeopardized. Species of special concern are those that warrant special attention due to similarity in appearance to other species, commercial exploitation, environmental changes, and/or long-term population declines. Species of this category may also have potential impact on endangered or threatened populations of other species.

TABLE 6:
ENDANGERED, THREATENED, AND SPECIES OF SPECIAL CONCERN LIKELY TO OCCUR IN ROCKY BAYOU AQUATIC PRESERVE.

COMMON NAME/SCIENTIFIC NAME	FGFWFC	USFWS	FDA
BIRDS:			
Osprey *Pandion haliaetus*	SSC	----	----
Clapper Rail *Rallus longirostris scottii*	----	UR2	____
Least Tern *Sterna antillarum*	T	----	----
MAMMALS:			
Florida Black Bear *Ursus americanus floridanus*	T	UR2	----
REPTILES/AMPHIBIANS:			
American Alligator *Alligator mississippiensis*	SSC	T(s/a)	----
Bog Frog *Rana okaloosae*	SSC	----	----

ENDANGERED, THREATENED, AND SPECIES OF SPECIAL CONCERN LIKELY TO OCCUR IN ROCKY BAYOU AQUATIC PRESERVE.

FISH:

Atlantic Sturgeon *Acipenser oxyrhynchus*	SSC	UR2	----
Okaloosa Darter *Etheostoma okaloosae*	E	E	----

PLANTS:

Mountain Laurel *Kalmia latifolia*	----	----	T
Needle Palm *Raphidophyllum hystrix*	----	UR	C
Orange Azalea *Rhododendron austrinum*	----	UR	E
Whitetop Pitcher Plant *Sarracenia leucophylla*	----	UR2	E

FGFWFC = Florida Game & Fresh Water Fish Commission
USFWS = United States Fish & Wildlife Service
E = Endangered
T = Threatened
T(s/a) = Threatened due to similarity of appearance
C = Commercially exploited
SSC = Species of Special Concern
UR2 = Under review for federal listing, but substantial evidence of biological vulnerability and/or threat is lacking.

I. CULTURAL RESOURCES

Rocky Bayou Aquatic Preserve has not been surveyed for cultural resources. There are, however, three recorded historical structures or archeological sites within or adjacent to the boundaries of the preserve and the potential for other sites in the area is great. These three sites correspond to periods of occupation by three different Indian groups; the Archaic Indians, the Deptford group, and the Weeden group.

The topographical setting of the area, bluffs with major drainage areas, could have provided an ideal habitat for the settlement of various peoples. From their elevated positions

on the bluff, settlements remained dry and the occupants were able to observe the movement of animals below.

Several periods of Indian occupation in the area also make it a prime location for cultural resources. Sequentially, the periods of occupation are as follows: Paleo Indian period (12,000 - 9,500 years ago), Archaic Indian period (9,500 - 3,500 years ago), Transitional, Deptford (2,500 - 1,900), Swift Creek (1,900 - 1,200), Weeden Island (1,200 - 700), Fort Walton (700 - 300), and finally historic occupations (MacLaren, 1990).

At the close of the Archaic period pottery cultures began to appear throughout Florida, and it is possible that these people occupied the wetland areas around the preserve. Rangers from the Fred Gannon Rocky Bayou State Recreation Area have reported pottery shards in their park area. In the interest of preserving any unknown cultural resources which might exist within the preserve, a thorough survey of the area will have to be conducted.

J. REGIONAL LAND USE, DEVELOPMENT & ASSOCIATED IMPACTS

1. ADJACENT UPLAND USES

The upland areas immediately adjacent to Rocky Bayou Aquatic Preserve are presently broken down into the following categories: low density residential development, mixed-use, recreational, and military holdings (Okaloosa County Comprehensive Plan, 1990). A more detailed outline of local land use is provided in the local government future land use map in Figure 4.

a. RESIDENTIAL

1. **Low Density Development:** Low-density residential development occurs on the uplands along the northern perimeter of Rocky Bayou. Several single family homes, docks, and boathouses line the shore in this area. Some of the boathouses appear to be non-conforming.

b. MIXED-USE: The intent of this category is to promote innovative arrangement of development types, to promote natural resource enhancement and to promote open spaces around buildings. This category of land use allows an intense mixture of residential and commercial activity. Medical related facilities, general commercial uses, such as restaurants and entertainment facilities, are also permitted in this category.

The area which is designated for mixed-use is adjacent to the south-east corner of the aquatic preserve. Parkwood Estates residential development, Bluewater Bay Elementary School, and several small shops are within the mixed-use area.

c. **RECREATIONAL:** The recreation category includes city, county, federal, military, state parks, and golf courses. The area adjacent to the aquatic preserve which has been designated as recreational lies directly to the south of Rocky Bayou and includes Fred Gannon Rocky Bayou State Recreation Area. The park land is owned by the U.S. Forest Service and is presently leased to the state.

d. **MILITARY HOLDINGS:** The military holding of Eglin Air Force Base is adjacent to the forested wetland area and marsh system to the north-east of the aquatic preserve. There is development immediately adjacent to the aquatic preserve in this area.

2. USES OF THE PRESERVE

The uses of Rocky Bayou Aquatic Preserve can be divided into two general categories:

Public/Recreation - Rocky Bayou Aquatic Preserve is located adjacent to Fred Gannon Rocky Bayou State Recreation Area which provides easy access to the preserve through a boat ramp and public camping and picnic areas. Popular recreational activities include fishing, swimming, snorkeling, water skiing, jet skiing, picnicking, and hiking along the nature trails and steephead streams.

Private - private uses are reflected by the presence of several small, private docks associated with adjacent upland single-family residences.

3. PLANNED USE

Residential development adjacent to the preserve is expected to increase as the city of Niceville expands. In addition, Okaloosa County plans major road work in the area. If approved, Highway 20 adjacent to the preserve and recreation area would be widen, and a new bridge would span the eastern portion of the preserve in addition to the present bridge. There is the possibility that Fred Gannon Rocky Bayou State Recreation Area's land lease will not be renewed. If the lease is not renewed at some future time the land could be subject development.

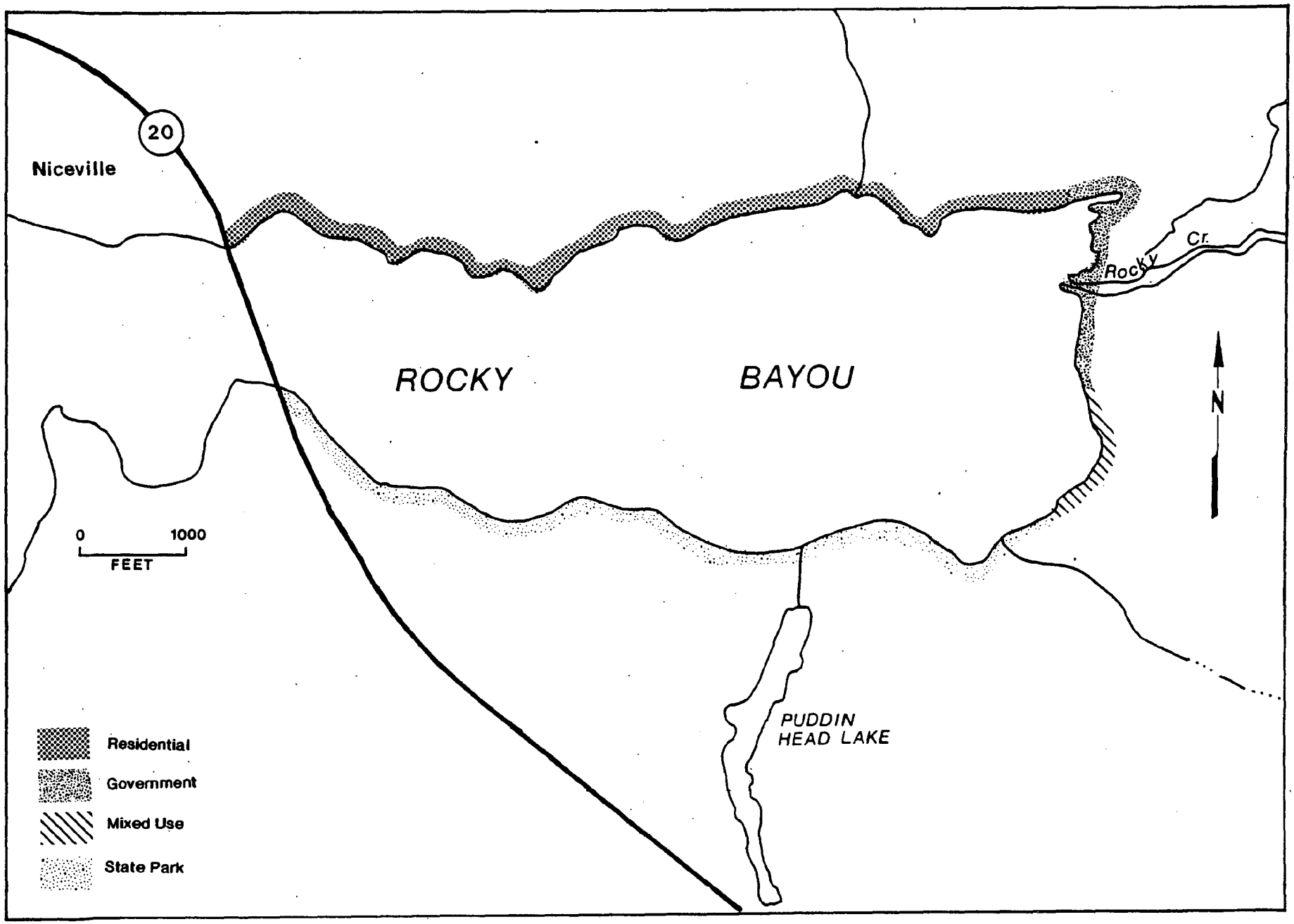

FIGURE 4: Adjacent Land Use Map

CHAPTER IV

MANAGEMENT AREAS

A. INTRODUCTION

This chapter divides Rocky Bayou Aquatic Preserve into separate management areas and delineates the general rule criteria for allowable uses (e.g., activities and structures) associated with each area. Each management area is classified by the value of natural and cultural resources (e.g., types, occurrence) on submerged lands adjacent to the differing types of upland use (e.g., residential, commercial).

The purpose of this chapter is four-fold: (1) to provide a better understanding of the general rule criteria designed to preserve and protect resources and habitat, (2) to identify the types of allowable uses on state-owned submerged lands within a preserve, (3) to provide local planners with a guide for land use decisions, and (4) to provide both the staff of the Bureau of Submerged Lands and Preserves and other agencies a continuity of direction in the management of this segment of the bayou. As such, this intent will afford habitat protection while lending some measure of predictability for allowable public and private uses in the aquatic preserve.

Prior to providing the criteria for specific resource management areas, it is important that the intent, jurisdiction, and limitations of Florida's Aquatic Preserve Program be reiterated. Section 258.36, F.S., states that "It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value...be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations." The program has jurisdiction over the use of state-owned submerged lands within the boundaries of a given preserve. Activities which occur outside the boundaries of an aquatic preserve or which do not directly affect state-owned submerged lands are not within the jurisdiction of the Aquatic Preserve Program (e.g., adjacent upland uses, regulation of commercial fishing).

There are a number of differences between the rules governing uses of state-owned submerged lands within an aquatic preserve and those not within an aquatic preserve. The principal difference is that uses of submerged lands within an aquatic must be shown to be "in the public interest" before it can be authorized as opposed to being "not contrary to the public interest" for non-aquatic preserve areas.

B. MANAGEMENT AREA CLASSIFICATIONS

A key component of the management program for any aquatic preserve is the division of the preserve into management areas. The classification of management areas in an aquatic preserve is based upon the resource value of submerged lands within the preserve associated with existing and future land uses on the adjacent uplands as designated in the local government comprehensive plan(s). As in the delineation of upland uses through zoning, the delineation of a preserve into management areas is two-fold: (1) to identify areas of public and private uses, and (2) to provide standards with which proposed uses and activities must comply. The intent of these management area classifications is to make potential development activities compatible with resource protection goals.

Designated or existing land uses are incorporated into the classification of management areas because use of the adjacent uplands has a direct bearing on the intensity of demand for uses of state-owned submerged lands. As mentioned earlier, the Aquatic Preserve Program has no jurisdiction over the designated use of the adjacent uplands. The incorporation of a designated land use into the management area classification is simply an acknowledgement of a local government's decision on how a specific upland area can be developed. Specific land uses to be incorporated in the classification of management areas of this plan include:

Single-Family (SF): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as single-family residential. It is intended to include areas using the adjacent portion of the preserve solely for private recreational activities.

Public Recreation (PR): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as public recreation/preservation and is utilized for the purposes of public recreation. It is intended to include (1) areas where structures are used by the general public at no charge and (2) federal, state, and municipal parks that charge a nominal fee. Military property, while not always open to the public, is included in this category since the buildings and grounds are often designated as public facilities.

Open Water (OW): This category represents state-owned submerged lands within an aquatic preserve which are of a distance of greater than 500 feet from land.

Each of the land use classifications listed above is assigned an appropriate number to identify the resource value of the adjacent submerged lands. The methodology used to determine this resource value shall be consistent with the latest methodology approved by the Bureau of Submerged Lands and Preserves.

If an area within the preserve is identified as a **Primary Resource Protection Area (PRPA)**, then it will be assigned a resource value of **"1"**. A PRPA essentially combines Resource Protection Areas 1 and 2, as defined in Sections 18-20.003(31), and 18-20.003(32), F.A.C.

Submerged areas that are characterized by the absence of the above resource attributes will be identified as a **Secondary Resource Protection Area (SRPA)** and assigned a resource value of **"2"**. A SRPA is a Resource Protection Area 3 as defined by Section 18-20.003(33), F.A.C.

As stated previously, resource values are to be incorporated into the classification of management areas. For instance, if a submerged area within the preserve is determined to have a resource value of 1 and the adjacent uplands is zoned as single-family residential (SF), then this management area would be classified as **SF/1**.

C. MINIMUM CRITERIA FOR ALLOWABLE USES

Chapter 18-20, F.A.C., provides the minimum standards with regard to the utilization of state-owned submerged lands within an aquatic preserve as authorized by the Board of Trustees and the Department of Natural Resources. It should be noted that other regulatory agencies rules and jurisdictions over activities may also apply within aquatic preserves. The minimum standards for each allowable use are detailed below.

All Dock Structures: Section 18-20.004(5)(a), F.A.C., states that all docking facilities within an aquatic preserve shall meet the following standards and criteria:

1. no dock shall extend waterward of the mean or ordinary high water line more than 500 feet or 20 % of the width of the waterbody at that particular location, whichever is less;

2. areas of significant biological, scientific, historic, and/or aesthetic value require special management considerations. Modifications to docks in these areas may be more restrictive and shall be determined on a case-by-case basis;

3. the number, lengths, drafts, and types of vessels allowed to utilize the proposed facility may be stipulated;

4. where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for the protection and enhancement of the aquatic preserve shall prevail.

Additional policies include all docking structures to access a depth of -4 feet at mean low water (MLW) and a reduction in the width of a terminal platform to 4 feet wide if the platform is over seagrasses. This reduction will not affect the overall area of the terminal platform.

Private Residential Single Docks: Section 18-20.004(5)(b), F.A.C., states that private residential single docks, as defined by Section 18-20.003(23), F.A.C., shall conform to the following specific design standards and criteria:

1. any main access pier shall be limited to a maximum width of four feet;

2. must be designed and constructed to ensure maximum light penetration;

3. can extend from the shoreline no further than -4 feet at (MLW);

4. when the water depth is -4 feet MLW at an existing bulkhead, the dock length from the bulkhead shall not exceed 25 feet, subject to modifications accommodating shoreline vegetation overhang;

5. wave break devices shall be designed to allow for maximum water circulation and built in such a manner as to be part of the dock structure;

6. the maximum size of the terminal platform shall be 160 square feet;

7. dredging to obtain navigable water depths is strongly discouraged.

In the interests of clarification, the term "private residential single docks" refers to those docks associated with single-family residences that are used for private recreational purposes.

Private Residential Multi-Slip Docks: Section 18-20.004(5)(c), F.A.C., states that private residential multi-slip docks, as defined by Section 18-20.003(24), F.A.C., shall conform to the following design standards and criteria:

1. the area of sovereignty submerged land preempted by the docking facility shall not exceed the square footage amounting to ten times the riparian waterfront footage of the affected waterbody of the applicant, or the square footage attendant to providing a single dock in accordance with the criteria for private residential single docks, whichever is greater. A conservation easement or other such restriction acceptable to the Board must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights of ingress and egress for additional docking facilities;

2. docking facilities and access channels shall be prohibited in Resource Protection Areas 1 and 2 (= PRPA), except as allowed pursuant to Section 258.42(3)(e)1, F.S., while dredging in Resource Protection Area 3 (= SRPA) shall be strongly discouraged;

3. water depths adjacent to and within the proposed mooring area shall have a minimum clearance of one foot between the deepest draft vessel and the submerged bottom at MLW;

4. main access piers and connecting walks shall not exceed six feet in width;

5. terminal platforms shall not exceed eight feet in width;

6. finger piers shall not exceed three feet in width and 25 feet in length;

7. pilings may be utilized as required to provide adequate mooring capabilities;

8. specific provisions of Section 18-20.004(5)(d), F.A.C., for commercial, industrial, and other revenue generating/income-related docking facilities shall also apply to private residential multi-slip docks.

Lease or Transfer of Lands: Section 18-20.004 (1)(b), F.A.C. states that there shall be no further lease or transfer of sovereignty lands within an aquatic preserve unless such transaction is in the public interest. Section 18-20.004(2), F.A.C. specifically defines the public interest test (see Appendix A for a copy of Chapter 18-20, F.A.C.). Section 18-20.004(1)(e), F.A.C. states that a lease, easement, or consent of use may be authorized only for the following activities: (1) a public navigation project; (2) maintenance of an existing navigation channel; (3) installation or maintenance of approved navigational aids; (4) creation or maintenance of a commercial/industrial dock, pier, or marina; (5) creation or

maintenance of private docks; (6) minimum dredging of navigation channels attendant to docking facilities; (7) creation or maintenance of shore protection structures; (8) installation or maintenance of oil and gas transportation facilities; (9) creation, maintenance, replacement, or expansion of facilities required for the provision of public utilities; and (10) other activities which are a public necessity or which are necessary to enhance the quality and quantity of the preserve and which are consistent with the Florida Aquatic Preserves Act (Sections 258.35 - 258.46, F.S.). Section 18-20.004(1)(f), F.A.C. states that structures to be built in, on, or over sovereignty lands are limited to those necessary to conduct water-dependent activities.

Utility Easements: Section 18-20.004(3)(c), F.A.C. states that utility cables, pipes, and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged resources (e.g., seagrass beds, oyster bars) and do not interfere with traditional uses. It will be the policy to place additional utilities into designated corridors or existing easements within the aquatic preserve if no other reasonable alternative exists.

Spoil Disposal: Section 18-20.004(3)(d), F.A.C. states that spoil disposal within an aquatic preserve shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that the spoiling activity may be beneficial to, or at a minimum, not harmful to the quality or utility of the preserve. It will be the policy not to recommend spoil disposal onto a PRPA within Rocky Bayou Aquatic Preserve. Exceptions to this criteria may be granted where beach quality sand is transferred and deposited onto shoreline beaches as part of an approved beach restoration management plan.

Piers: Piers shall be constructed in accordance with the minimum criteria provided by Section 18-20.004(5)(b), F.A.C. In addition, the following conditions apply to all piers: (1) the entire structure will be elevated to a minimum of 5 feet above the MHWL, (2) hand rails will be installed around the perimeter of the structure, (3) at least one "Docking Prohibited" sign will be posted and maintained on each side of the pier, (4) no temporary or permanent mooring of vessels will be permitted, and (5) dredging is prohibited when associated with pier construction and maintenance.

Ramps: Boat ramps will be reviewed on a case-by-case basis. Determining factors to be reviewed include: (1) the elimination or alteration of natural resources or habitat (e.g., seagrasses, shoreline vegetation, nesting areas), (2) the amount of dredging and/or filling of submerged lands, and (3) accessibility to the ramp from water and land routes.

Additional criteria for the repair, replacement, and expansion of existing structures are provided for in Chapter 18-21, F.A.C. Replacement and expansion of structures must comply with the minimum criteria provided for in Chapter 18-20, F.A.C.

In addition to the allowable uses listed above, certain activities are generally permissible in all management areas in accordance with general rules. These activities include shoreline stabilization, maintenance dredging, and maintenance of channel markers. Where appropriate to protect environmental resources, certain conditions or restrictions may be placed on these types of activities. For example, seawalls in some locations may be discouraged, and rip rap may be required to be placed along seawall, in order to provide additional habitat.

D. MANAGEMENT AREAS

In this section, each management area is delineated with boundaries, descriptions, and allowable uses. Due to changes that may occur from the rezoning of adjacent uplands and altering biological conditions on submerged lands, the final decision on approving, modifying or denying uses of the submerged lands within the preserve will be made based on field surveys and assessments of project sites. Figure 5 is a map of all management areas within this segment of the preserve. The purpose of providing this map is to give some general guidance and an understanding of where the management areas lie within this segment.

Some management areas may have a specific activity occurring within that is not reflective of the overall upland use. As an example, an upland parcel consists of a marina surrounded by single-family homes adjacent to extensive seagrasses. The marina may have preceded residential development and the aquatic preserve designation; therefore, it would be unreasonable to remove the facility. Marina expansion and new commercial-type activities, however, will not be allowed in this management area because of the presence of seagrasses and/or the upland zoning restrictions. In such cases, the specific activity will be recognized as a "non-conforming use". This term simply recognizes the specific activity as such and is not to be interpreted as a termination of vested rights should a change in ownership occur, nor does it imply that future non-conforming uses will be allowed.

MANAGEMENT AREA SF/1

(single-family/primary resource protection area)
(there are two management areas in this category)

Boundaries: The first management area is defined as all state-owned submerged lands which extend 500 feet waterward from the mean high water line, 3200 feet east of the line between sections 10 and 11, township 1 south, range 22 west and continuing approximately 3000 feet west of said line to the boundary of the property owned by Eglin Air Force Base, near the mouth of an unnamed creek emptying into Rocky Bayou.

Description: This area is characterized by stands of smooth cordgrass, saltmeadow cordgrass, rush, sawgrass, and common reed. Turkey Creek and two unnamed creeks enter Rocky Bayou in this area. Some low bluffs, uncommon in Florida, also occur here. Submerged resources include polychaete worms, crabs, clams, and scattered grassbeds. Sixteen docks/boathouses are in this area. At least two appear to be non-conforming structures.

Allowable Uses: Utility easements (in designated corridors), private residential single docks and piers.

Boundaries: The second management area in this category is defined as all state-owned submerged lands extending 500 feet waterward from the mean high water line and 1600 feet south along the shoreline of the line between sections 11 and 14, township 1 south, range 22 west.

Description: This area is characterized by dense stands of saltmeadow cordgrass, sawgrass, rush, scattered cypress trees and bottomland hardwoods. An abandoned osprey nest occurs here. There is also the floodplain of a steephead stream which has been partially filled to provide for a roadway. The mouth of this stream is vegetated with widgeon grass, a submerged aquatic plant, and a small tidal marsh. The development company which owns this land has obtained a permit for a fishing pier, but to this date, the structure has not been built. A condition of the permit was the establishment of a 1600 foot conservation easement along the shoreline. This means that, other than the permitted fishing pier, no other structures will be built on state-owned submerged lands in this section. Presently, two non-conforming pilings are standing approximately 800 feet south of the north line of section 14.

Allowable Uses: Utility easements (in designated corridors), private residential single docks and piers.

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Bureau of Submerged Lands and Preserves, Northwest Florida Aquatic Preserve
Field Office. %
$   7  260     [Tallahassee] : 'b Dept. of Natural Resources, 'c [1991]. %
$   8  300     98 p. : 'b ill., maps ; 'c 28 cm. %
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MANAGEMENT AREA SF/2

(single-family/secondary resource protection area)

Boundaries: This area is defined as all state-owned submerged lands 500 feet waterward from the mean high water line in section 10, township 1 south, range 22 west, along the north shore of Rocky Bayou, extending approximately 950 feet eastward from the intersection of State Road 20 and the mean high water line.

Description: This area is characterized by sandy, somewhat eroded beaches. Five docks with boathouses, seawalls, and a non-conforming boat ramp are in this area.

Allowable Uses: utility easements, private residential single docks and piers.

MANAGEMENT AREA PR/1

(public recreation/primary resource protection area)
(there are two management areas in this category)

Boundaries: The first management area is defined as all state-owned submerged lands extending 500 feet waterward from the mean high water line, which borders Rocky Bayou State Recreation Area. The western boundary of this management area is State Road 20 and the eastern boundary is the second SF/1 area previously described.

Description: There are several habitat types in this area. The mouths of three steephead ravines (one impounded to create Puddin Head Lake) empty into the bayou in this area. The mouths of the ravines are vegetated with emergent wetland species, such as smooth cordgrass, saltmeadow cordgrass, common reed, and sawgrass. Some widgeon grass, a submerged aquatic plant, occurs along the mouth of the eastern most steephead ravine. Emergent wetland species appear all along the shoreline, interspersed between low bluffs, an unusual geologic feature in Florida. A small tidal marsh and scattered stands of rush also occur in this management area. Due to the impact from wind generated waves, boat wakes, jet ski wakes, and foot traffic, some erosion has occurred in places along the shoreline. Resources in this area include ospreys, crabs, polychaete worms, and scattered grassbeds.

Allowable Uses: utility easements (in designated corridors), public docks (meeting the requirements of a private residential single dock), ramps and piers.

Boundaries: The second management area in this category is defined as all state-owned submerged lands extending 500 feet waterward from the mean high water line in section 11, township 1 south, range 22 west, which borders the property owned by Eglin Air Force Base. The boundaries of this management area are the two SF/1 areas previously described.

Description: This area is characterized by a mixture of scattered cypress trees, dense bottomland hardwoods, and emergent wetland vegetation. Rocky Creek and an unnamed creek empty into Rocky Bayou in this area. Leaf litter and a creek delta characterize the submerged lands.

Allowable Uses: utility easements (in designated corridors), public docks (meeting the requirements of a private residential single dock), ramps and piers.

MANAGEMENT AREA OW/1

(open water/primary resource protection area)

Boundaries: This management area is defined as all state-owned submerged lands of Rocky Bayou, which are 500 feet waterward of the mean high water line, within the aquatic preserve.

Description: This area is characterized by relatively shallow, dark waters of low salinities with scattered grassbeds. Major uses include recreational and commercial fishing, swimming, jet skiing and water skiing.

Allowable Uses: utility easements (in designated corridors).

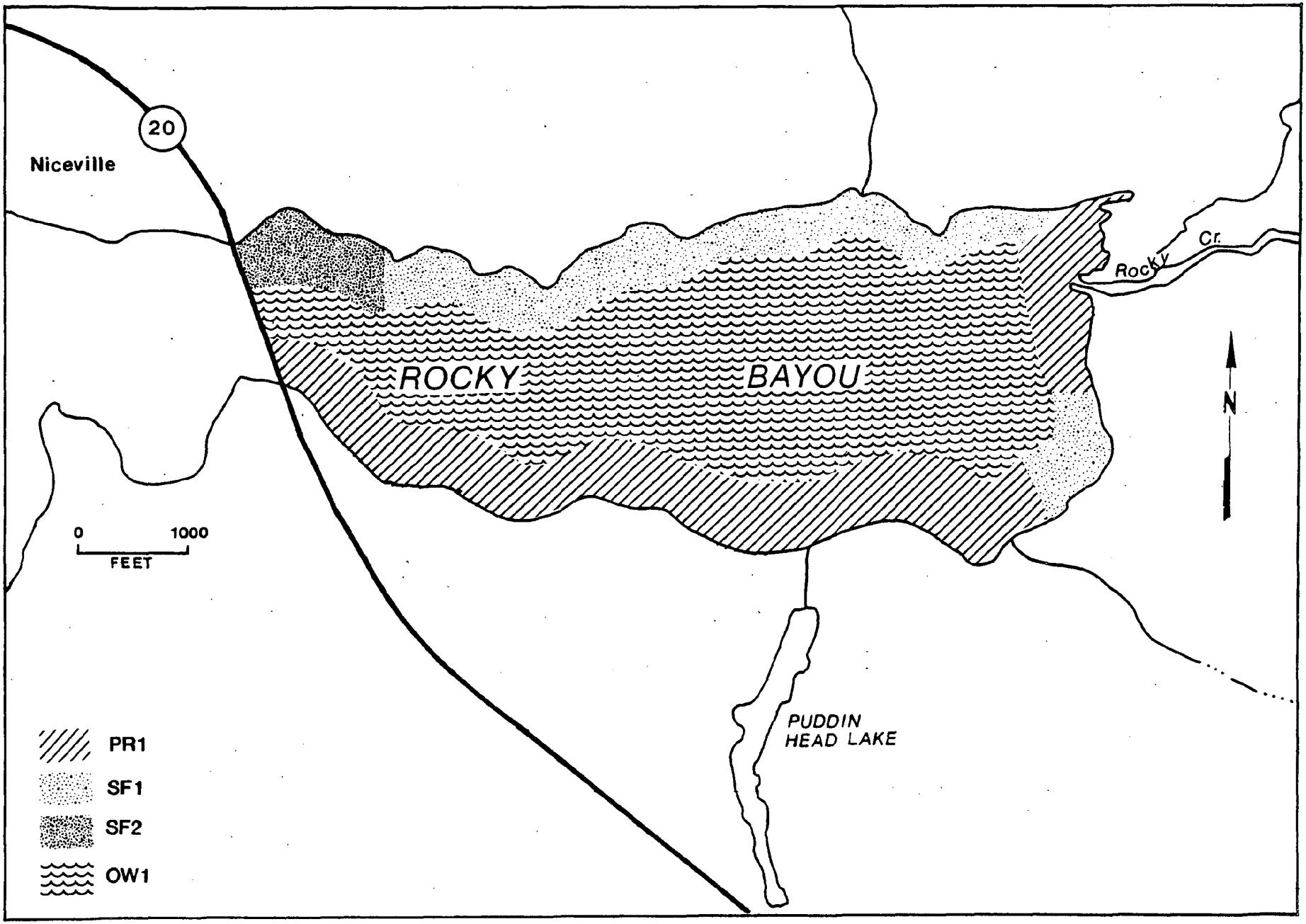

FIGURE 5: Management Areas

CHAPTER V

SITE SPECIFIC MANAGEMENT ISSUES AND NEEDS

This chapter deals with management issues and initiatives involving specific activities and environmental processes that directly affect the biological integrity of the preserve. The issues that are specific to this area include, but are not limited to, increasing boat and jet ski traffic and habitat protection. Management initiatives relative to these issues provide additional direction not set forth by Chapter 258, F.S., Chapter 18-20, F.A.C., or Chapter IV of this plan. These initiatives are intended to be used as a tool for DNR to manage the aquatic preserve and encourage local governmental and/or other agencies to provide additional restrictions where necessary for resolving those issues and needs.

A. MANAGEMENT ISSUES AND SPECIAL NEEDS

1. Boat and Jet Ski Traffic

As the population of Okaloosa County grows, the traffic from boats, water skiers and jet skis is expected to increase. This trend poses a number of problems, both from the standpoint of the impacts on the biological resources and from related safety issues. The biological aspects include: (1) an increase in turbidity, with the resultant loss of submerged grassbeds sensitive to lowered levels of incident light penetration, (2) cutting of submerged grassbeds by propellers and "prop dredging", (3) pollution from refueling jet skis on beaches and shallow bay areas, and (4) shoreline erosion from boat and jet ski wakes.

Safety issues primarily revolve around the dramatic increase in jet ski use in recent years. By their very nature, jet skis are fast and highly maneuverable, making them a potential hazard for boaters and swimmers. The small size of Rocky Bayou and the heavy use it receives from recreational activities such as swimming and fishing make the use of jet skis in the preserve a dangerous activity.

Management Initiatives:

(1) Encourage the local government to adopt an ordinance restricting the use of jet skis to areas outside the aquatic preserve.

(2) Work with local governments to establish a speed limit for boat traffic in Rocky Bayou.

2. Protection of Habitat and Designated Species

Increasing pressures from development and other human activities have impacted and continue to impact the natural environment of Rocky Bayou. Alligators, Okaloosa darters, ospreys, and least terns, all designated species, occur in the area. Additionally, the steephead ravines which drain into Rocky Bayou are rare habitats, known to occur only in the Florida panhandle. Several species of rare plants and animals can be found within these ravines.

Three steephead ravines which drain into Rocky Bayou are located in Fred Gannon Rocky Bayou State Recreation Area. One ravine was impounded to create Puddin Head Lake, however, the dam to this lake blew out in May 1991 due to improper design, improper maintenance, and excessive rainfall. The mouth of the westernmost ravine has been partially filled for a roadway crossing. Drainage is facilitated through a culvert. The easternmost ravine in the recreation area receives siltation and untreated stormwater runoff from adjacent developments. No water quality studies have been conducted in these ravines. A fourth steephead ravine occurs outside the park boundaries in adjacent Parkwood Estates. Approximately 300 feet of wetlands near the ravine's mouth were filled to provide automobile access to sections of the development. Drainage is facilitated through culverts. Sedimentation from clearing and developing has also impacted this ravine and many trees of the floodplain have died. Clearly, these rare steephead ravines are sensitive environmental areas which must be protected.

As with the steephead ravines, the designated species which occur in this area also need protection. Ospreys have abandoned nest sites near Parkwood Estates and other nests are thought to be unproductive due to predation by crows. The Okaloosa darter, a state and federally listed endangered fish, is known to occur in Rocky Creek and is believed to occur in the steephead streams draining into the bayou. Other designated species occurring in the preserve include alligators and least terns.

Although not rare, salt marsh in the preserve has been impacted by erosion caused by boat and jet ski wakes and wind generated waves. Local citizens claim that grassbeds and associated shrimp populations are being impacted by commercial shrimping activities.

Considering the small size of Rocky Bayou and the pressure it faces from human activities, a committed effort must be made to preserve, protect, and study the remaining natural areas.

Management Initiatives:

(1) Coordinate with Florida Park Service District I and Fred Gannon Rocky Bayou State Recreation Area personnel to conduct a detailed inventory and analysis of the current status of the steephead streams/ravines which drain into Rocky Bayou. This inventory and analysis will include an updated summary of rare, threatened and endangered flora and fauna of the steephead streams/ravines, an analysis of human impact, and recommendations for preservation for these unique habitats.

(2) Coordinate with Florida Park Service District I and Fred Gannon Rocky Bayou State Recreation Area personnel to encourage an environmentally sound solution to the blown-out dam across Puddin Head Lake. If the dam is to be rebuilt, provide input to aid in the construction of a quality dam, and maintenance of the dam after construction. If the dam is not to be repaired, provide input to prevent further sedimentation of wetlands adjacent to the area and in Rocky Bayou Aquatic Preserve.

(3) Coordinate with Florida Park Service District I and Fred Gannon Rocky Bayou State Recreation Area personnel to encourage a solution to the erosion problem occurring along the low bluffs adjacent to Rocky Bayou.

(4) Coordinate with the Florida Game and Fresh Water Fish Commission, U.S. Fish and Wildlife Service and Florida Natural Areas Inventory to monitor the status of designated species in the preserve.

(5) Coordinate with Department of Environmental Regulation, Florida Park Service District I and local citizens to implement a saltmarsh habitat restoration project.

(6) Through environmental education activities, encourage citizens and elected officials to recommend laws and policies to further protect the natural environment of the preserve.

3. Water Quality

Although the Department of Environmental Regulation has designated Rocky Bayou as having "good" overall water quality, limited water quality analyses have been conducted on preserve waters. As previously stated, untreated stormwater runoff and eroded sediments drain into the bayou. The source of the stormwater runoff is the nearby housing development and a overflow from a retention pond at an adjacent elementary school.

Management Initiatives:

(1) Coordinate with Department of Environmental Regulation and local officials to set up a regular water quality monitoring program in the preserve.

(2) Coordinate with Department of Environmental Regulation and local officials to improve treatment of stormwater runoff and decrease sedimentation and siltation in the immediate drainage basin.

4. Establishment of a Long-Term Lease Agreement for Fred Gannon Rocky Bayou State Recreation Area

Fred Gannon Rocky Bayou State Recreation Area has been operating on a series of five year leases from the United States Forest Service. Negotiations are currently underway to extend the lease to fifteen years. A long term lease would increase the possibility for improvements at Fred Gannon Rocky Bayou State Recreation Area.

Management Initiatives:

(1) Actively support the establishment of a long-term lease agreement for Fred Gannon Rocky Bayou State Recreation Area. Offer assistance to the Division of Recreation and Parks as needed to aid in the establishment of the long-term lease agreement.

5. Regulation of Commercial Fishing

Citizens in the area state that small commercial shrimping vessels enter Rocky Bayou under Highway 20 during the shrimping season. Residents are opposed to this activity for several reasons: some believe the law intended to restrict shrimping from all bayous in Choctawhatchee Bay, but it is not being enforced in all bayous; shrimp boats pose a hazard to boaters, recreational fishermen and skiers in small Rocky Bayou; shrimp boat wakes contribute to shoreline erosion along Rocky Bayou; shrimp boat trawls may be damaging the remaining submerged grassbeds; and, the bayou is a "nursery ground" for other commercially important species which may later migrate to the open gulf upon reaching maturity. Shrimping is regulated by the Marine Fisheries Commission and the rules are enforced by DNR's Division of Law Enforcement, Florida Marine Patrol. Presently, the Marine Fisheries Commission is preparing a shrimping management plan which will address issues such as gear, bag limits, and allowable areas for shrimping. The plan will be completed in stages and will be open for public comment.

Management Initiatives:

(1) Contact Florida Marine Patrol and Marine Fisheries Commission to determine areas open to shrimping.

(2) Through environmental education activities, inform local citizens of the future shrimping management plan and how citizens may become involved with the plan.

(3) Participate in the public hearing and public comment phases of the shrimping management plan and make recommendations to Marine Fisheries Commission to protect the submerged resources of Rocky Bayou.

6. Proposed Bridge Across Eastern Rocky Bayou

The Okaloosa County Traffic Improvement Plan calls for the construction of a new bridge across Rocky Bayou. The proposed bridge could have a negative impact on designated species and habitat quality in the area, as well as ruin the aesthetics of the preserve.

Management Initiative:

(1) Monitor the status of the proposed bridge and provide comments as necessary to encourage other alternatives.

7. Name Change

The aquatic preserve is presently known as Rocky Bayou State Park Aquatic Preserve. The "state park" is actually a "state recreation area", i.e. Fred Gannon Rocky Bayou State Recreation Area. Given the incorrect name status and the uncertainty over lease renewals for the recreation area, a more appropriate name is Rocky Bayou Aquatic Preserve.

Management Initiative:

(1) Propose technical correction in the statutory language designating Rocky Bayou as an aquatic preserve.

CHAPTER VI

MANAGEMENT ACTION PLAN

This chapter establishes the guidelines which allow for the management and protection of the Rocky Bayou Aquatic Preserve's natural and cultural resources for the benefit of future generations (Section 258.35, F.S.).

Before an effective program can be designed to manage and protect natural resources, the function, importance, and location of the resources must be defined. Additional efforts will consist of identifying those activities or parameters that affect these resources, either positively or negatively. This information will form the foundation from which action will be initiated to manage and protect these resources. The management strategies for an aquatic preserve program must consist of a variety of components such as **resource management, resource protection, research,** and **environmental education.**

In general, the role of the management program for the aquatic preserve includes:

* providing information on the ecological functions and economic importance of the natural resources within the bayou,

* overseeing those activities that affect the natural resources within the bayou,

* ensuring that accurate biological and physical information is considered in permit-related issues and planning decisions,

* ensuring that all statutes and rules regarding the bayou's natural resources are followed and that violations are enforced by the appropriate authorities,

* conducting site surveys for specific activities,

* coordinating with other resource management and enforcement agencies,

* educating the public on the inherent and economic values associated with natural resources,

* conducting or cooperating with other entities to conduct pertinent research projects, and

* developing a comprehensive management program that can be periodically updated.

A. RESOURCE MANAGEMENT

The overall goals of resource management within aquatic preserves are:

* maintaining current, detailed resource inventories,
* assessing the impact of human activities on the resources,
* establishing habitat restoration programs, and
* cooperating with other agencies in water quality improvement.

GOAL A.1: MAINTAIN RESOURCE INVENTORIES

Objective A.1.1: To conduct and maintain a resource inventory of submerged and emergent vegetation.

Task A.1.1.1: Conduct an inventory of grassbeds, attached algae, marsh grasses, and other shoreline vegetation by using available satellite imagery (e.g., LANDSAT, SPOT, etc.), aerial photography, Loran coordinates, and groundtruthing efforts.

Task A.1.1.2: This inventory shall be conducted once every two years.

Task A.1.1.3: The database generated from this inventory will be used to create biological resource maps through the use of pcARC/INFO.

Objective A.1.2: To conduct and maintain an inventory of plant and animal species, including designated species, and their habitats.

Task A.1.2.1: Conduct an inventory of plant and animal species, including designated species, and their habitats by using data from existing literature, current research studies and groundtruthing efforts.

Task A.1.2.2: This inventory shall be conducted once every two years.

Objective A.1.3: To conduct and maintain an inventory of coastal and estuarine birds and their habitats.

Task A.1.3.1: Conduct an inventory of birds that feed, roost, loaf, and nest throughout the bayou by using existing literature, current research studies and groundtruthing efforts.

Task A.1.3.2: This inventory shall be conducted once every two years.

Objective A.1.4: To conduct and maintain an inventory of cultural sites in the preserve.

Task A.1.4.1: Conduct an inventory of cultural sites in the preserve.

Task A.1.4.2: This inventory shall be updated every two years.

GOAL A.2: ASSESS THE IMPACTS OF HUMAN ACTIVITIES IN THE PRESERVE

Objective A.2.1: To inventory and assess the effects of human activities on the natural resources.

Task A.2.1.1: Implement a project natural resource impact monitoring program on all future projects constructed in the preserve to determine if there is a direct relationship between the presence of structures and the absence of natural resources.

Task A.2.1.2: Assess the impact of shrimp trawling on the submerged resource of the preserve.

GOAL A.3: RESTORE ESTUARINE HABITAT

Objective A.3.1: To identify suitable unvegetated and disturbed shoreline areas as restoration sites.

Task A.3.1.1: Conduct a survey to identify suitable shoreline areas that could be revegetated with marsh grass plantings.

Objective A.3.2: To seek grant funding sources to restore or enhance estuarine habitat in the bayou.

Task A.3.2.1: Pursue grant funding to remove exotic vegetation from Rocky Bayou and restore Juncus and Spartina marshes.

Task A.3.2.2: Enter into a mutual agreement with the Florida Park Service to accomplish habitat restoration of wetlands smothered by the sediments of the blown-out dam at Puddin Head Lake.

GOAL A.4: IMPROVE WATER QUALITY

Objective A.4.1: To coordinate with DER, Northwest Florida Water Management District (NWFWMD), and local governments toward improving water quality in the bayou.

Task A.4.1.1: Actively pursue procurement of basic water quality monitoring supplies for the preserve.

Task A.4.1.2: Maintain an inventory file and assess available water quality data in the preserve. Coordinate with DER and NWFWMD to determine sources of degradation and evaluate possible actions to improve water quality.

Task A.4.1.3: Coordinate with DER, NWFWMD and local governments toward improving the management of surface water and stormwater discharges into the aquatic preserve.

GOAL A.5: COORDINATE WITH LOCAL GOVERNMENTS ON LAND USE PLANNING

Objective A.5.1: To coordinate with local planning departments, regional planning councils, and the Department of Community Affairs to develop/revise/evaluate local government comprehensive plans and amendments.

Task A.5.1.1: Establish role as field representative for DNR Aquatic Preserves with local governments. Offer assistance in the development of policies and ordinances that regulate activities affecting state-owned submerged lands.

B. RESOURCE PROTECTION

In order to maintain the biological integrity of the aquatic preserve, it is imperative to protect the resources that comprise the system. Since it is not feasible to target all of the organisms adequately, the primary thrust of the resource protection element is the protection of the various habitats that make up the preserve. The goals of the aquatic preserve program with regard to resource protection therefore include (1) protection of the existing submerged vegetation (e.g., seagrass beds, attached algae), (2) protection of emergent vegetation (e.g., marsh grass), and (3) protection of plant and animal species, especially designated species, and their habitat.

GOAL B.1: PROTECTION OF SUBMERGED AND EMERGENT VEGETATION

Objective B.1.1: To minimize potential damage to submerged and emergent vegetation through the review of applications for use of state-owned land in the aquatic preserve.

Task B.1.1.1: Develop a written policy describing a scientifically based, standardized method to inventory the submerged and emergent biological resources at the proposed project site.

Task B.1.1.2: Coordinate with the appropriate DNR planner to relay the aquatic preserve manager's comments on proposed projects, and to receive copies of authorizations for all projects in the aquatic preserve.

Objective B.1.2: To ensure that structures and projects are authorized and are in compliance with the authorized conditions.

Task B.1.2.1: Report projects that do not appear to have been authorized and variations from the authorized conditions to the appropriate DNR enforcement agent.

Task B.1.2.2: Coordinate, when appropriate, with other agencies that have regulatory authority for these projects.

Objective B.1.3: To ensure that human use of the preserve does not adversely affect submerged and emergent vegetation.

Task B.1.3.1: Seek to establish an ordinance to reduce the speed of boats traveling in the aquatic preserve.

Task B.1.3.2: Require that approved dredge and fill projects use effective turbidity control practices.

Task B.1.3.3: Coordinate with the Florida Marine Fisheries Commission and local government to curtail shrimping in Rocky Bayou.

GOAL B.2: PROTECTION OF DESIGNATED SPECIES HABITAT

Objective B.2.1: To ensure that habitats of designated species are given maximum protection through the permit-review process.

Task B.2.1.1: Recommend modifications to proposed projects in order to take into account known habitat of designated species-over state-owned submerged land.

Task B.2.1.2: Coordinate with the Florida Game and Fresh Water Fish Commission and Florida Natural Areas Inventory when designated species habitat or "significant use areas" could be affected by proposed activities.

C. RESEARCH

Effective management of any biological system relies almost entirely on information as to how that system functions, and research is the foundation upon which this information is based. Estuarine systems are not fully understood, and it is essential that some of the gaps in this understanding be filled. The goals of the research program for aquatic preserves in general are:

* to gain a better understanding of those factors that are essential to the continued biological integrity of the major habitats (beds of submerged vegetation, marshes, etc.) within the aquatic preserve, and

* to gain a better understanding of those factors that govern the continued survival and propagation of designated species that use the aquatic preserve for any portion of their life cycle.

GOAL C.1: DETERMINE THE FACTORS THAT AFFECT THE INTEGRITY OF ESTUARINE HABITATS

Objective C.1.1: To determine the primary factors that affect the survival of estuarine species and habitats.

Task C.1.1.1: Pursue, at the bureau level, funding to conduct research on estuarine species and habitats.

Task C.1.1.2: Conduct a literature review of current status and biological trends of estuarine species and habitats in the preserve.

GOAL C.2: DETERMINE THE FACTORS WHICH AFFECT SURVIVAL AND PROPAGATION OF DESIGNATED SPECIES

Objective C.2.1: To determine the portions of the preserve that serve as habitat for designated species.

Task C.2.1.1: Coordinate with the Florida Game and Fresh Water Fish Commission, the U.S. Fish and Wildlife Service, Florida Natural Areas Inventory, the Florida Audubon Society, and any other relevant group to determine which designated species use what portion of

the aquatic preserve for various aspects of their life history.

Task C.2.1.2: Establish a system of seasonal monitoring sites to determine the preserve's use by designated species, particularly by birds.

Objective C.2.2: To determine the factors that affect the survival of designated species in the preserve.

Task C.2.2.1: Conduct a literature review to determine the factors known to affect the survival of designated species in the preserve.

Task C.2.2.2: Evaluate research needs of designated species in the preserve and pursue funding to accomplish research.

Objective C.2.3: To determine the species composition, distribution and abundance of the designated flora and fauna which occur in the steephead streams.

Task C.2.3.1: Cooperate with Florida Park Service to conduct research on the ecology and life history of designated flora and fauna which occur in the steephead streams.

Task C.2.3.2: Coordinate with and lend assistance to the Division of Recreation and Park's resource management program for Fred Gannon Rocky Bayou State Recreation Area.

D. ENVIRONMENTAL EDUCATION

The integrity of the biological system within Rocky Bayou can be affected, both directly and indirectly, by the public's enjoyment of the preserve. One of the primary aims of the aquatic preserve program, therefore, is to educate the public as to the importance of the factors that affect the integrity of the preserve. Environmental education instructs individuals as to the importance of preserving natural and cultural resources so they may consider all issues prior to making decisions that affect these resources. In general, the purpose of this element is to educate the public and encourage them to become responsible users of the preserve.

GOAL D.1: EDUCATE THE PUBLIC TOWARD WISE RESOURCE USE

Objective D.1: To develop an aquatic preserve interpretive program for use in existing environmental education programs and to educate users of the preserve on the bayou's natural resources .

Task D.1.1: Develop a reference library of information relevant to the natural resources of Rocky Bayou.

Task D.1.2: Coordinate with and assist Rocky Bayou State Recreation Area personnel to develop and implement interpretive programs which focus on the aquatic preserve.

Task D.1.3: Provide natural history talks and field trips for local public and private groups (scout groups, college students, developers, local government, etc.) interested in the bayou's natural resources.

Objective D.2: To produce educational literature and materials that inform the public of the bayou's natural and cultural resources and the importance of preserving and protecting these resources.

Task D.2.1: Develop brochures, pamphlets, and/or booklets that describe to the public; (1) the purpose of the aquatic preserve program and activities conducted at the local aquatic preserve office, (2) general information on the preserve's ecosystem. If feasible, this task will include video presentations.

Task D.2.2: Submit newspaper articles or radio announcements designed to educate the general public about the ecological functions and economic importance of the natural resources within the preserve.

Objective D.3: To participate in environmental education programs.

Task D.3.1: Participate in environmental education conferences and seminars to enhance teaching skills, to become familiar with other educational programs, and to share information on the aquatic preserve program.

Objective D.4: To establish an on-site environmental education display.

Task D.4.1: Pursue, at the bureau level, the necessary funds to construct an environmental display adjacent to the preserve.

CHAPTER VII

MANAGEMENT COORDINATION NETWORK

This chapter presents a general overview of the various federal, state, regional, and local agencies that regulate or hold any interest in the management or use of the Rocky Bayou Aquatic Preserve. A reference matrix of these regulatory programs and their jurisdictions is presented in Table 7. One function of the aquatic preserve program is to coordinate with these agencies to achieve common goals relevant to aquatic preserve management.

It should be noted that many of the following federal, state, and local agencies with jurisdiction in the preserve may impose additional permit requirements on activities previously outlined in Chapter IV of this plan.

A. FEDERAL AGENCIES

A number of federal agencies have property interests, construction activities, regulation programs, research activities, and land/wildlife management programs that deal either directly or indirectly with the aquatic preserves. These federal agencies include: U.S. Army Corps of Engineers, U.S. Coast Guard, U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

The **U.S. Army Corps of Engineers (COE)** has jurisdiction over inland navigable waters under the Rivers and Harbors Act of 1899. A revision of the Rivers and Harbors Act in 1968 extended the Corps' jurisdiction, allowing the agency to consider the fish and wildlife, conservation, pollution, aesthetics, ecology, and other relevant factors of a project. The Corps Regulatory Program was expanded in 1972 to include the Federal Water Pollution Control Act Amendments, now known as the Clean Water Act (CWA). Section 404 of this act requires the Corps to control dredge and fill activities. In 1977, amendments to the CWA extended this jurisdictional responsibility to wetlands. The Corps also contributes 50% of the funds reimbursed to the Water Management Districts by the Department of Natural Resources for aquatic plant control.

Rocky Bayou is monitored by the **U.S. Coast Guard (USCG)** for boating safety (including search and rescue operations) and navigational problems, and to enforce maritime laws. The Coast Guard Auxiliary, an organization of volunteers, performs boating safety inspections, conducts boating classes and assists in search and rescue operations.

The **U.S. Environmental Protection Agency (EPA)** has jurisdiction over surface waters in the state. Enforcement authority was given under the Clean Water Act of 1968 and broadened under the 1977 revision. In general, the EPA is responsible for pollution control and abatement, including: air, water, noise, solid waste, toxic waste, and radiation. The agency reviews permits issued by the Department of Environmental Regulation for the treatment, disposal, and storage of hazardous wastes. Authority is divided between EPA and USCG regarding the discharge of oil or hazardous substances into surface water.

The **U.S. Geological Survey (USGS)** performs surveys and research pertaining to topography as well as monitoring the mineral and water resources of the Rocky Bayou region.

The **U.S. Fish and Wildlife Service (USFWS)** is responsible for fish and wildlife and their habitat as authorized in: the Coastal Barrier Resources Act (COBRA), National Environmental Protection Act, Migratory Bird Act, Endangered Species Act, and the Fish and Wildlife Coordination Act (FWCA). Under provision of the FWCA, USFWS must be consulted before COE can submit a plan for Congressional approval. The USFWS comments on the impacts of proposed projects on endangered species, migratory birds, and other fish and wildlife and their habitats. They are directed to prepare environmental impact assessments or statements for proposed projects by the COE and are authorized to issue "Jeopardy Opinion" against any proposed project which will negatively affect an endangered species (Barile et al., 1987).

The **National Marine Fisheries Service (NMFS)**, under the Department of Commerce, is involved with fisheries management.

In accordance with the federal consistency review process, the Bureau of Submerged Lands and Preserves reviews the federal programs and activities as to how they affect the objectives of the aquatic preserve management program. This review is coordinated through the Florida Department of Environmental Regulation's Office of Coastal Management in order to enforce the provisions of the Federal Coastal Zone Management Act of 1972, as amended.

B. STATE AGENCIES

Eight state agencies have programs that affect the resources or regulate activities within the aquatic preserves: Department of Natural Resources, Department of Environmental Regulation, Department of Health and Rehabilitative Services, Game and Freshwater Fish Commission, Department of Community Affairs, Marine Fisheries Commission, Department of State, and the Department of Transportation.

Although not a state agency, the Office of Planning and Budgeting of the Governor's Executive Office, in conjunction with the DER's Office of Coastal Management, is responsible for administering project reviews applicable to Florida's Coastal Management Program Federal Consistency evaluation process. This process includes all projects in the state that involve federal permitting, federal assistance or control federal activities. Each project must undergo this additional review to determine if the project is consistent with established programs, policies, and rules of the State, including aquatic preserves.

The **Department of Natural Resources (DNR)** areas of responsibility include state lands, sovereignty submerged lands, and marine resources (e.g., marine research projects, sea turtle and manatee protection). The Florida Marine Patrol enforces safe boating laws as well as commercial and recreational fishing regulations. Authority granted under Chapters 18-20, and 18-21, F.A.C., gives DNR responsibility to regulate commercial and residential docks and other structures and activities conducted on submerged lands. Chapters 369.20-369.22, F.S., authorize the Bureau of Aquatic Plants to regulate various aquatic plant control programs, including permit review for mechanical, biological, and chemical control of aquatic plants. Permits are also necessary under Chapter 16C-52, F.A.C., "Aquatic Plant Importation, Transportation, Cultivation, and Possession", for any persons cultivating, revegetating, or collecting aquatic plants.

The **Department of Environmental Regulation (DER)** has a broad range of responsibilities and receives its authority from State Law and some delegated from EPA. Generally, the DER responsibilities include water management, water quality, potable water, air quality, coastal management, wetland protection, power plant siting, hazardous and solid wastes.

These responsibilities are accomplished through the following regulatory mechanisms: (1) establishment of state standards designed to protect natural systems and prevent harmful pollutants from entering these systems; (2) application of these standards through the permitting of potential sources of pollution and monitoring discharges for compliance; and (3) initiation of enforcement action for non-compliance with these standards.

The DER's rules significant to the aquatic preserve management program are Chapters 17-301, 17-302, 17-4, and 17-312, F.A.C. Authority for these rules is based in Chapter 403, F.S. Chapter 17-301 and 17-302, F.A.C., addresses water quality standards with the most stringent category being "Outstanding Florida Waters" (OFW). The Rocky Bayou Aquatic Preserve became an OFW in 1979. Chapter 17-4, F.A.C., addresses permit

requirements and Chapter 17-312, F.A.C., covers dredge and fill activities.

Section 253.77, F.S., as amended by the Warren S. Henderson Wetlands Protection Act of 1984, requires that any person requesting the use of state-owned lands shall have prior approval of the Trustees. As a result of this amendment, an interagency agreement between DNR and DER provides for comments from DNR staff, on behalf of the Board of Trustees, into the DER permitting process for proposed activities in aquatic preserves.

The **Department of Health and Rehabilitative Services (HRS)** has responsibilities to protect the public's health by overseeing functions that involve water supply, on-site sewage disposal, septic tank cleaning, solid waste control, and hazardous wastes. Authority for these responsibilities is found in Chapters 154, 381, and 386, F.S., and in the 10D Series of F.A.C., known as the "Sanitary Code." Within each county, HRS functions as the county's health department and oversees these jurisdictional responsibilities.

Also affecting the public's health and the aquatic preserve program is the arthropod (mosquito) control program, which is usually administered through the local mosquito control district. Each of these public health programs holds the potential to create significant impacts upon the aquatic preserves.

The **Game and Fresh Water Fish Commission (GFWFC)** authority is provided in the rules and regulations of Chapters 39.101 and 39.102, F.A.C. This authority involves the implementation of specific regulations and their enforcement for protecting all wildlife and their habitats. As such, the GFWFC is the state coordinator for species designated for protection in Florida.

The **Department of Community Affairs (DCA)** and the Regional Planning Councils are authorized under Section 380.06, F.S., for administering the Development of Regional Impact (DRI) review program. The DRI process was established to provide a review and monitoring procedure for development projects potentially affecting the health, safety or welfare of citizens of more than one county.

Additionally, the DCA designates Areas of Critical State Concern (ACSC). These designations are intended to protect the areas of the state where development has endangered or may endanger resources of regional or statewide significance. Under an ACSC designation, the local governments are required to submit new or existing land development regulations to DCA for review and approval. According to Section 380.05, F.S., the entire land development process will require the state's supervision until that local government modifies its land

development practices to conform to the principles guiding development within an ACSC.

The DCA also oversees the development of Local Government Comprehensive Plans (LGCP) for both counties and municipalities, as required by the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Part II, F.S. Subsection 163.3203(5), F.S., provides that DCA shall adopt rules for the review of local government land development regulations. Within one year of submission for review by DCA, local governments are required to adopt land development regulations which are consistent with their comprehensive plans, pursuant to Subsection 163.3167(2), F.S. The two elements within these plans that bear most directly on the aquatic preserve program are the Coastal Zone Management Element and the Conservation Element.

The **Marine Fisheries Commission (MFC)** was established as a rulemaking authority pursuant to Section 370.027, F.S. The seven members appointed by the Governor are delegated full rulemaking authority over marine life (subject to approval by the Trustees), with the exception of endangered species. This authority covers the following areas: (a) gear specifications, (b) prohibited gear, (c) bag limits, (d) size limits, (e) species that may not be sold, (f) protected species, (g) closed areas, (h) quality control codes, (i) open/closed seasons, and (j) special considerations related to egg-bearing individuals, and (k) relaying of clams and oysters. The MFC is also instructed to make annual recommendations to the Trustees regarding marine fisheries research priorities.

The **Department of State (DOS), Division of Historical Resources (DHR)** has the responsibility granted under Chapter 267, F.S., regarding the preservation and management of Florida's archaeological and historical resources. This responsibility includes those cultural resources located on state-owned lands, including aquatic preserves.

The **Department of Transportation (DOT)** has responsibilities that include right-of-way and surface water runoff in the areas of roads, bridges, and causeways. The DOT also updates a state-wide aerial photographic survey every four years, rotating on a district basis.

C. REGIONAL AGENCIES

At the regional level, the management coordination network includes the Northwest Florida Water Management District and the West Florida Regional Planning Council. These organizations conduct activities that are on a broader scale than those of local governments.

The **Northwest Florida Water Management District (NWFWMD)** was created by Chapter 61-69, Laws of Florida, as a public corporation for carrying out Chapter 378, F.S., and is governed by provisions of Chapter 373, F.S. Chapters 40D-4 and 40D-40 were adopted to ensure continued protection of the water resources of the District including wetlands and other natural resources. The rules in these chapters are to implement the surface water management permit system mandated in Part IV of Chapter 373, F.S. The statutes resulted from passage of Chapter 84-79, Laws of Florida, the Warren G. Henderson Wetlands Protection Act of 1984.

The **West Florida Regional Planning Council (WFRPC)** serves as a regional planning body for county and municipal governments. Its many functions include: (1) providing assistance to local governments with planning expertise, (2) serving as the regional representative for the DRI review process, (3) serving as a regional clearinghouse for state and federal projects and programs, (4) assisting local governments in securing grants, (5) conveying information from the local governments to the state and federal levels, and (6) preparing and administering the Regional Comprehensive Policy Plan.

D. LOCAL GOVERNMENTS/INTEREST GROUPS

Local governments are the incorporated cities and counties that border the preserve. The entire Rocky Bayou Aquatic Preserve is in Okaloosa County which has jurisdiction over upland zoning regulations. Although not directly adjacent to the preserve, the incorporated municipalities of Niceville and Valpariso lie very near the preserve. The Local Government Comprehensive Plan for Okaloosa County has been adopted by the county but has not yet been accepted by the Department of Community Affairs.

As the liaison with local governments, field personnel provide input into local government policies to encourage conformance with the objectives of the aquatic preserve management plan.

Private and Public Interest Groups

Effective management of the preserve will be enhanced by continued support from organized groups, associations, and individuals. Citizen support organizations are particularly valuable through the provision of technical, non-technical, and financial assistance. The administration and field staff will encourage participation from citizen support organizations at the aquatic preserve.

TABLE 7: MANAGEMENT COORDINATION NETWORK

LOCAL AGENCIES

LGT	Local Governments (Cities, Towns, Municipalities)
CGT	County Governments
LDD	Local Drainage Districts
MCD	Mosquito Control Districts
ICD	Inlet Commissions/Districts
SWC	Soil and Water Conservation Districts

STATE AGENCIES

DCA	Florida Department of Community Affairs
DER	Florida Department of Environmental Regulation
DNR	Florida Department of Natural Resources
GFC	Florida Game and Freshwater Fish Commission
HRS	Florida Department of Health and Rehabilitative Services
DOS	Florida Department of State
DOT	Florida Department of Transportation
FMP	Florida Marine Patrol
FSG	Florida Sea Grant
MFC	Marine Fisheries Commission
DAC	Florida Department of Agriculture and Consumer Services

REGIONAL AGENCIES

RPC	Regional Planning Council
WMD	Water Management Districts
FIN	Florida Inland Navigation District

FEDERAL AGENCIES

CG	United States Coast Guard
COE	United States Army Corps of Engineers
EPA	United States Environmental Protection Agency
FWS	United States Fish and Wildlife Service
NMF	National Marine Fisheries Service
GS	United States Geological Survey

Source: modified from the Indian River Lagoon Joint Reconnaissance Report, 1987

	Local						Regional				State										Federal						
	LGT	CGT	LDD	MCD	ICD	SWC	RPC	WMD	FIN	DAC	DCA	DER	DNR	GFC	HRS	DOS	DOT	FMP	FSG	MFC	CG	COE	EPA	FWS	NMF	GS
Dredge and Fill Permitting	●	●						●	●			●	●	●						●	●	●	●	●		●
Docks, Fishing Piers, Seawalls	●	●										●	●									●				
Marinas	●	●					●				●	●	●							●		●		●		
Submerged Lands Management									●				●													
Habitat Protection	●	●					●	●			●	●	●	●				●		●		●		●	●	
Mangroves/Wetlands Protection	●	●					●	●			●	●	●	●								●		●		
Seagrass Protection	●	●					●	●			●	●	●									●		●	●	
Habitat Restoration		●						●			●	●	●	●			●					●		●		
Mangroves/Wetlands Restoration		●		●				●			●	●	●									●		●		
Seagrass Restoration								●			●	●	●									●		●		●
Resource Inventory							●	●	●		●	●	●	●					●	●				●	●	
Manatees/Porpoises	●	●					●				●		●											●	●	
Endangered Species	●	●					●				●		●	●			●	●	●	●	●			●	●	●
Shellfish/Aquaculture		●		●						●		●	●													
Public Awareness/Education		●						●	●		●	●	●	●				●	●	●	●	●	●	●	●	
Research				●				●				●	●	●					●						●	
Fisheries Research				●							●		●	●					●	●				●	●	
Fisheries Management				●							●		●						●	●				●	●	
Recreational Fishing											●		●	●				●	●	●				●	●	
Commercial Fishing											●		●					●	●	●				●	●	
Wildlife Management								●			●			●				●		●		●		●	●	
Mosquito Impoundments		●		●							●		●									●				
Historical/Archeological Sites	●	●					●				●		●			●										
Water Quality	●	●		●		●	●	●			●	●	●		●			●					●	●		
Nonpoint Source Pollution	●	●				●	●	●			●	●	●		●		●					●	●	●		
Point Source Pollution	●	●					●	●			●	●	●		●							●	●	●		
Oil/Chemical Spills		●					●	●			●	●	●					●			●	●	●	●		
Drainage/Freshwater Control	●	●	●			●	●	●			●	●	●									●		●		
Emergency Response	●	●					●				●	●	●	●				●								
Upland Development	●	●					●	●			●															
Land Use Planning	●	●					●				●															
Navigational/Boating	●	●			●		●		●				●	●	●			●	●		●	●		●		
Recreational Areas	●	●					●		●				●					●	●			●		●		●
Bridges and Roads		●					●	●			●	●	●				●				●	●				●

CHAPTER VIII

STAFFING AND FISCAL NEEDS

Historically, the Aquatic Preserve Program has been largely dependent on federal coastal zone grant funds for the development of management plans, with very little of this funding allocated towards staffing. Consequently, the number of both field positions and central office positions have been limited.

In order for the Rocky Bayou State Park Aquatic Preserve to be managed in accordance to the goals, objectives and tasks, set forth in this plan, adequate state funding for staffing and equipment is essential. Currently, one employee has been assigned to manage Rocky Bayou State Park Aquatic Preserve, in addition to managing three other northwest Florida aquatic preserves. There is no legislative funding for a permanent on-site manager at the preserve. Instead, management is conducted on a part-time basis by the aquatic preserve manager located in the Pensacola field office.

It is anticipated that the above program can be implemented with two full-time employees for the preserve and a full-time secretarial assistant. This estimate does not include staff-time or expenses by DNR and other state agency employees involved intermittently in the various tasks necessary to manage and conserve the natural resources of the aquatic preserve. An annual review of the accomplishments of the program relative to the tasks listed in Chapter VI will help to determine if the initial staffing estimate is adequate to meet the legislative intent of the program.

A budget covering projected staff time, equipment, travel and other expenses for this area is found in Table 8. The budget is required to fulfill the short range needs of the preserve as described in this management plan, and accomplish the Department goal of on-site management for all aquatic preserves by 1991, as expressed in the Agency Functional Plan.

TABLE 8

ANTICIPATED BUDGET FOR ROCKY BAYOU STATE PARK AQUATIC PRESERVE AND OTHER LOCALLY ASSOCIATED AQUATIC PRESERVES

SALARY	1ST YEAR	2ND YEAR
ES II (with benefits)	$ 33,836	$ 34,851
ES I (with benefits)	28,224	29,071
Secretary (with benefits)	17,255	17,773
Subtotal	79,315	81,695
OPERATING CAPITAL OUTLAY		
Vehicle	$ 15,000	
17' Boat/Motor/Trailer	15,000	
Office Equipment	10,000	
Computer	5,000	
Sampling Gear/Supplies	3,000	
Subtotal	48,000	
OPERATING EXPENSES		
Office Rent/Gas/Phone	$ 19,000	$ 21,000
TOTAL COST	**$146,315**	**$102,695**

CHAPTER IX

RESOURCE AND PROGRESS MONITORING PROGRAM

To ensure that this management plan is effectively implemented, it will be necessary to institute two programs that will: (1) monitor changes in the biological resources over time, and (2) record any accomplishments achieved by the Rocky Bayou Aquatic Preserve Program. These monitoring programs will consist of the following:

A. RESOURCE MONITORING

To monitor changes in the natural resources, a geographic information system (GIS) will be required. A GIS is a computer-based system that is used to capture, edit, display, and analyze geographic information. The first GIS programs were developed about 20 years ago to manage large collections of natural resource and environmental information. Since their development, they have been used in other areas such as utilities mapping, inventory management, and land use planning; however, their most important function continues to be natural resource management.

Future use of the GIS system will include the periodic inventory, compilation, and analysis of temporal and spatial data concerning the present state of the natural resources within the preserve. Historical aerial photography will be computerized for comparison with later data to conduct a temporal analysis of resource abundance. Detailed monitoring of revegetation/restoration efforts can also be computer analyzed. The on-line access to these natural resource databases will facilitate informed management decisions concerning the use and protection of submerged lands and their resources. Cooperation and file sharing is possible with other agencies handling such data with identical and similar systems.

B. PROGRESS MONITORING

For this phase of the management plan to be effectively implemented, it is necessary to monitor the accomplishments and progress of the Rocky Bayou Aquatic Preserve Program on a regular basis. The purpose of this element is to detail the program's accomplishments in its pursuit of the objectives outlined in Chapter VII. This information, to be submitted in a report once every two years to the Bureau Chief, will include an update of the biological resources' status within

the preserve as well as identifying current human activities. This report will detail the following:

1. The state of the natural environment of the aquatic preserve.

   a. Through the use of resource inventories and the GIS system, document the status of each biological resource (e.g., seagrass loss or gain).

   b. Identify the current number of structures/activities either started or completed in the preserve. These structures/activities will be categorized as follows:
      1) authorized projects (e.g., private residential single docks, multi-family fishing piers),
      2) unauthorized projects, and
      3) projects not in compliance with the original authorization.

2. A list of accomplishments of those tasks outlined in Chapter VII.

   a. Each task will be listed and the activities required to complete that task will be detailed. If the task was not done or not completed, an explanation will be given. If the explanation was due to insufficient funding/staff, then this fact will be detailed so that an update of Chapter IX can be made.

3. Any new goals and/or objectives will be reflected in an update of Chapter VII.

BIBLIOGRAPHY

Barile, D., C.A. Panico, and G.E. Health. 1987. Management plan and implementation strategy for the Indian River Lagoon systems. Marine Resources Council, Florida Institute of Technology. Sea Grant Contract IRL IR-1, Melbourne, Florida.

Barr, D.E. 1983. Ground Water Conditions in the Vicinity of Choctawhatchee Bay, Northwest Florida. Northwest FLorida Water management District Special Report 83-10. 46 pp.

CRS Sirrine, Inc. 1988. Draft Environmental Assessment: Choctawhatchee Bay Bridge.

Fernald, E.A. and D.J. Patton. 1984. Water Resources Atlas of Florida. Institute of Science and Public Affairs. Florida State University. 291 pp.

Florida Game and Fresh Water Fish Commission. 1988. Official Lists of Endangered and Potentially Endangered Fauna and Flora in Florida. 19 pp.

Livingston, R.J. 1986. The Choctawhatchee - River - Bay System. Center for Aquatic Research and Resource Management. Florida State University, Tallahassee, FL. 4v.

Livingston, R.J., C.C. Koenig, and J.M. Kuperberg. 1988. Final Report: Choctawhatchee Bay Project for Florida Division of Community Affairs and Northwest Florida Water Management District. Center for Aquatic Research and Resource Management. Florida State University, Tallahassee, FL.

MacLaren, P. 1990. Resource Management Audit: Rocky Bayou State Recreation Area. Division Of Recreation and Parks, District I.

Mettee, M.F. 1977. A Study on the Distribution of Etheostoma okaloosae, the Okaloosa Darter and Etheostoma edwardii, the Brown Darter, in Northwest Florida. J. Ala. Acad. Sci. 48(3): 65

Northwest Florida Water Management District, 1986. A Compilation of Studies by the Northwest Florida Water Management District on Choctawhatchee Bay, Florida. Water Resources Special Report 86-2.

Okaloosa County Comprehensive Plan, Draft NO. X-10. 1990. Barrett Daffin and Carlan, Inc.

Plaik, T.F., and J.T. Kunneke. 1984. Northwestern Florida Ecological Characterization: an ecological atlas. Map narratives, 90 maps A1 through E18. U.S. Fish and Wildlife Service. FWS/OBS - 82/47.1. Minerals Management Service 85-0011; 302 pp.

Shipp, R.L. 1986. Dr. Bob Shipp's Guide to Fishes of the Gulf of Mexico. Marine Environmental Consortium of Alamaba. Dauphin Island Sea Laboratory. 256 pp.

Soil and Water Conservation Society, Florida Chapter. 1989. 26 Ecological Communities. pg. 67-72.

Stout, J.P. 1984. The Ecology of Irregularly Flooded Salt Marshes of the Northeastern Gulf of Mexico: A Community Profile. U.S. Fish and Wildlife Service. Biological Report 85(7.1). 98 pp.

Trapp, H. Jr., C.A. Pascale, and J.B. Forester. 1977. Water Resources of Okaloosa County and Adjacent Areas, Florida: U.S. Geological Survey Water Resources Investigations 77-9. 83 pp.

Wolfe, S.H., J.A. Reidenauer, and D.B. Means. 1988. An Ecological Characterization of the Florida Panhandle. U.S. Fish and Wildlife Service Biol. Rep. 88(12) Minerals Management Service OCS study MMS 88-0063; 277 pp.

APPENDIX A

Relevant Legislation

CHAPTER 18-20
FLORIDA AQUATIC PRESERVES

Library References: Riparian rights in navigable waters, I. Henry Dean, 55 Fla. Bar J. 247, 250 (Mar., 1981).

18-20.001 Intent.

(1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation, including hunting and fishing where deemed appropriate by the board, and the managing agency.

(2) The aquatic preserves which are described in 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392 and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in an essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) To preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) To protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) To coordinate with federal, state, and local agencies to aid in carrying out the intent of the Legislature in creating the preserves;

(d) To use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, and to assist in managing the preserves;

(e) To encourage the protection, enhancement or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing manmade conditions toward their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserves;

(f) To preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, salt water marshes, fresh water marshes, mud flats, estuarine, aquatic, and marine reptiles, game and non-game fish species, estuarine, aquatic and marine invertebrates, estuarine, aquatic and marine mammals, birds, shellfish and mollusks;

(g) To acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserves;

(h) To maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large.

(4) Nothing in these rules shall serve to eliminate or alter the requirements or authority of other governmental agencies, including counties and municipalities, to protect or enhance the preserves provided that such requirements or authority are not inconsistent with the act and this chapter.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.35, 258.36, 258.37, 258.39, 258.393 FS, Chapter 80-280 Laws of Florida. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.01, Transferred from 16Q-20.001.

18-20.002 Boundaries and Scope of the Preserves.

(1) These rules shall only apply to those sovereignty lands within a preserve, title to which is vested in the board, and those other lands for which the board has an appropriate instrument in writing, executed by the owner, authorizing the inclusion of specific lands in an aquatic preserve pursuant to Section 2(2) of Chapter 73-534, Laws of Florida, Sections 258.40(1) and 258.41(5), Florida Statutes, future aquatic preserves established through general or special acts of the legislature, and pursuant to Rule 18-20.008, Florida Administrative Code. Any publicly owned and maintained navigation channel authorized by the United States Congress, or other public works project authorized by the United States Congress, designed to improve or maintain commerce and navigation shall be deemed to be excluded from the

provisions of this chapter, pursuant to Subsection 258.40(2), Florida Statutes. Furthermore, all lands lost by avulsion or by artificially induced erosion shall be deemed excluded from the provisions of this chapter pursuant to Subsection 258.40(3), Florida Statutes.

(2) These rules do not apply to Boca Ciega Bay, Pinellas County or Biscayne Bay Aquatic Preserves.

(3) These rules are promulgated to clarify the responsibilities of the board in carrying out its land management functions as those functions apply within the preserves. Implementation and responsibility for environmental permitting of activities and water quality protection within the preserves are vested in the Department of Environmental Regulation. Since these rules are considered cumulative with other rules, a person planning an activity within the preserves should also consult the other applicable department rules (Chapter 18-21, Florida Administrative Code, for example) as well as the rules of the Department of Environmental Regulation.

(4) These rules shall not affect previous actions of the board concerning the issuance of any easement or lease; or any disclaimer concerning sovereignty lands.

(5) The intent and specific provisions expressed in 18-20.001(e) and (f) apply generally to all existing or future aquatic preserves within the scope of this chapter. Upon completion of a resource inventory and approval of a management plan for a preserve, pursuant to 18-20.013, the type designation and the resource sought to be preserved may be readdressed by the Board.

(6) For the purpose of clarification and interpretation, the legal description set forth as follows do not include any land which is expressly recognized as privately owned upland in a pre-existing recorded mean high water line settlement agreement between the board and a private owner or owners. Provided, however, in those instances wherein a settlement agreement was executed subsequent to the passage of the Florida Coastal Mapping Act, the determination of the mean high-water line shall be in accordance with the provisions of such act.

(7) Persons interested in obtaining details of particular preserves should contact the Bureau of State Lands Management, Department of Natural Resources, 3900 Commonwealth Blvd., Tallahassee, FL 32303 (telephone 904-488-2297).

(a) The preserves are described as follows:

1. Fort Clinch State Park Aquatic Preserve, as described in the Official Records of Nassau County in Book 108, pages 343-346, and in Book 111, page 409.

2. Nassau River — St. Johns River Marshes Aquatic Preserve, as described in the Official Records of Duval County in Volume 3183, pages 547-552, and in the Official Records of Nassau County in Book 108, pages 232-237.

3. Pellicer Creek Aquatic Preserve, as described in the Official Records of St. Johns County in Book 181, pages 363-366, and in the Official Records of Flagler County in Book 33, pages 131-134.

4. Tomoka Marsh Aquatic Preserve, as described in the Official Records of Flagler County in Book 33, pages 135-138, and in the Official Records of Volusia County in Book 1244, pages 615-618.

5. Wekiva River Aquatic Preserve, as described in Section 258.39(30), F.S.

6. Mosquito Lagoon Aquatic Preserve, as described in the Official Records of Volusia County in Book 1244, pages 619-623, and in the Official Records of Brevard County in Book 1143, pages 190-194.

7. Banana River Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 195-198, less those lands dedicated to the U. S. A. prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board, and be managed as part of the preserve.

8. Indian River — Malabar to Sebastian Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 199-202, and in the Official Records of Indian River County in Book 368, pages 5-8.

9. Indian River — Vero Beach to Fort Pierce Aquatic Preserve, as described in the Official Records of Indian River County in Book 368, pages 9-12, and in the Official Records of St. Lucie County in Book 187, pages 1083-1086.

10. Jensen Beach to Jupiter Inlet Aquatic Preserve, as described in the Official Records of St. Lucie County in Book 218, pages 2865-2869.

11. North Fork, St. Lucie Aquatic Preserve, as described in the Official Records of Martin County in Book 337, pages 2159-2162, and in the Official Records of St. Lucie County in Book 201, pages 1676-1679.

12. Loxahatchee River — Lake Worth Creek Aquatic Preserve, as described in the Official Records of Martin County in Book 320, pages 193-196, and in the Official Records of Palm Beach County in Volume 1860, pages 806-809.

13. Biscayne Bay — Cape Florida to Monroe County Line Aquatic Preserve, as described in the Official Records of Dade County in Book 7055, pages 852-856, less, however, those lands and waters as described in Section 258.165, F. S., (Biscayne Bay Aquatic Preserve Act of 1974), and those lands and waters within the Biscayne National Park.

14. Lignumvitae Key Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 139-142.

15. Coupon Bight Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 143-146.

16. Cape Romano — Ten Thousand Islands Aquatic Preserve, as described in the Official Records of Collier County in Book 381, pages 298-301.

17. Rookery Bay Aquatic Preserve, as described in Section 258.39(31), FS.

18. Estero Bay Aquatic Preserve as described in Section 258.39(28), Florida Statutes.

19. Pine Island Sound Aquatic Preserve, as described in the Official Records of Lee County in Book 648, pages 732-736.

20. Matlacha Pass Aquatic Preserve, as described in the Official Records of Lee County in Book 800, pages 725-728.

21. Gasparilla Sound — Charlotte Harbor Aquatic Preserve, as described in Section 258.392, F.S.

22. Cape Haze Aquatic Preserve, as described in Section 258.39(29), F.S.

23. Cockroach Bay Aquatic Preserve, as described in Section 258.391, F.S.

24. St. Martins Marsh Aquatic Preserve, as described in the Official Records of Citrus County in Book 276, pages 238-241.

25. Alligator Harbor Aquatic Preserve, as described in the Official Records of Franklin County in Volume 98, pages 82-85.

26. Apalachicola Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 77-81, and in the Official Records of Franklin County in Volume 98, pages 102-106.

27. St. Joseph Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 73-76.

28. St. Andrews State Park Aquatic Preserve, as described in the Official Records of Bay County in Book 379, pages 547-550.

29. Rocky Bayou State Park Aquatic Preserve, as described in the Official Records of Okaloosa County in Book 593, pages 742-745.

30. Yellow River Marsh Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 206, pages 568-571.

31. Fort Pickens State Park Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 220, pages 60-63, in the Official Records of Escambia County in Book 518, pages 659-662, less the lands dedicated to the U. S. A. for the establishment of the Gulf Islands National Seashore prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board and be managed as part of the preserve.

32. For the purpose of this section the boundaries of the Lake Jackson Aquatic Preserve, shall be the body of water in Leon County known as Lake Jackson in Sections 1, 2, 3, 5, 10, 11 and 14, Township 1 North, Range 1 West and Sections 11, 12, 13, 14, 15, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, and 35, Township 2 North, Range 1 West lying below the ordinary high water line. Such lands shall include the submerged bottom lands and the water column upon such lands, as well as all publicly owned islands, within the boundaries of the preserve. Any privately held upland within the boundaries of the preserve shall be deemed to be excluded therefrom; provided that the Board may negotiate an arrangement with any such private upland owner by which such land may be included in the preserve.

33. Terra Ceia Aquatic Preserve, as described in Section 258.393, Florida Statutes.

34. Future aquatic preserves established pursuant to general or special acts of the legislature.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.39, 258.391, 258.392, 258.393, 258.40, 258.41, 258.42, 258.43, 258.44, 258.45 FS. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.02, Transferred from 16Q-20.002.

18-20.003 Definitions. When used in these rules, the following words shall have the indicated meaning unless the context clearly indicates otherwise:

(1) "Act" means the provisions of Section 258.35 through 258.46, F.S., the Florida Aquatic Preserve Act.

(2) "Activity" means any project and such other human action within the preserve requiring board approval for the use, sale, lease or transfer of interest in sovereignty lands or materials, or which may require a license from the Department of Environmental Regulation.

(3) "Aesthetic values" means scenic characteristics or amenities of the preserve in its essentially natural state or condition, and the maintenance thereof.

(4) "Applicant" means any person making application for a permit, license, conveyance of an interest in state owned lands or any other necessary form of governmental approval in order to perform an activity within the preserve.

(5) "Beneficial biological functions" means interactions between flora, fauna and physical or chemical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: nutrient, pesticide and heavy metal uptake; sediment retention; nutrient conversion to biomass; nutrient recycling and oxygenation.

(6) "Beneficial hydrological functions" means interactions between flora, fauna and physical geological or geographical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: retardation of storm water flow; storm water retention; and water storage, and periodical release;

(7) "Biological values" means the preservation and promotion of indigenous life forms and habitats including, but not limited to: sponges, soft corals, hard corals, submerged grasses, mangroves, saltwater marshes, fresh water marshes, mud flats, marine, estuarine, and aquatic reptiles, games and non-games fish species, marine, estuarine, and aquatic mammals, marine, estuarine, and aquatic invertebrates, birds and shellfish.

(8) "Board" means the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund.

(9) "Channel" means a trench, the bottom of which is normally covered entirely by water, with the upper edges of its sides normally below water.

(10) "Commercial, industrial and other revenue generating/income related docks" means docking facilities for an activity which produces income, through rental or any other means, or which serves as an accessory facility to other rental, commercial or industrial operations. It shall include, but not be limited to docking for: marinas, restaurants, hotels, motels, commercial fishing, shipping, boat or ship construction, repair, and sales.

(11) "Department" means the State of Florida Department of Natural Resources, as administrator for the board.

(12) "Division" means the Division of State Lands, which performs all staff duties and functions related to the administration of lands title to which is, or will be, vested in the board, pursuant to section 253.002, F.S.

(13) "Dock" means a fixed or floating structure, including moorings, used for the purpose of berthing buoyant vessels either temporarily or indefinitely.

(14) "Essentially natural condition" means those functions which support the continued existence or encourage the restoration of the diverse population of indigenous life forms and habitats to the extent they existed prior to the significant development adjacent to and within the preserve.

(15) "Extreme hardship" means a significant burden, unique to the applicant and not shared by property owners in the area. Self-imposed circumstances caused to any degree by actions of any person subsequent to the enactment of the Act shall not be construed as an extreme hardship. Extreme hardship under this act shall not be construed to include any hardship which arises in whole or in part from the effect of other federal, state or local laws, ordinances, rules or regulations. The term may be inherent in public projects which are shown to be a public necessity.

(16) "Fill" means materials from any source, deposited by any means onto sovereignty lands, either for the purpose of creating new uplands or for any other purpose, including spoiling of dredged materials. For the purpose of this rule, the placement of pilings or riprap shall not be considered to be filling.

(17) "Lease" means a conveyance of interest in lands, title to which is vested in the board, granted in accordance with specific terms set forth in writing.

(18) "Marina" means a small craft harbor complex used primarily for recreation.

(19) "Oil and gas transportation facilities" means those structures necessary for the movement of oil and gas from the production site to the consumer.

(20) "Person" means individuals, minors, partnerships, corporations, joint ventures, estates, trusts, syndicates, fiduciaries, firms, and all other associations and combinations, whether public or private, including governmental entities.

(21) "Pier" means a structure in, on, or over sovereignty lands, which is used by the public primarily for fishing, swimming, or viewing the preserve. A pier shall not include a dock.

(22) "Preserve" means any and all of those areas which are exceptional areas of sovereignty lands and the associated water body so designated in Section 258.39, 258.391, and 258.392, F.S., including all sovereignty lands, title to which is vested in the board, and such other lands as the board may acquire or approve for inclusion, and the water column over such lands, which have been set aside to be maintained in an essentially natural or existing condition of indigenous flora and fauna and their supporting habitat and the natural scenic qualities and amenities thereof.

(23) "Private residential single dock" means a dock which is used for private, recreational or leisure purposes for a single family residence, cottage or other such single dwelling unit and which is designed to moor no more than two boats.

(24) "Private residential multi-slip dock" means a docking facility which is used for private recreational or leisure purposes for multi-unit residential dwellings which shall include but is not limited to condominiums, townhouses, subdivisions and other such dwellings or residential areas and which is designed to moor three or more boats. Yacht clubs associated with residential developments, whose memberships or utilization of the docking facility requires some real property interest in the residential area, shall also be included.

(25) "Public interest" means demonstrable environmental, social, and economic benefits which would accrue to the public at large as a result of a proposed action, and which would clearly exceed all demonstrable environmental, social, and economic costs of the proposed action. In determining the public interest in a request for use, sale, lease, or transfer of interest in sovereignty lands or severance of materials from sovereignty lands, the board shall consider the ultimate project and purpose to be served by said use, sale, lease, or transfer of lands or materials.

(26) "Public navigation project" means a project primarily for the purpose of navigation which is authorized and funded by the United States Congress or by port authorities as defined by Section 315.02(2), F.S.

(27) "Public necessity" means the works or improvements required for the protection of the health and safety of the public, consistent with the Act and these rules, for which no other reasonable alternative exists.

(28) "Public utilities" means those services, provided by persons regulated by the Public Service Commission, or which are provided by rural cooperatives, municipalities, or other governmental agencies, including electricity, telephone, public water and wastewater services, and structures necessary for the provision of these services.

(29) "Quality of the preserve" means the degree of the biological, aesthetic and scientific values of the preserve necessary for present and future enjoyment of it in an essentially natural condition.

(30) "Resource management agreement" means a contractual agreement between the board and one

or more parties which does not create an interest in real property but merely authorizes conduct of certain management activities on lands held by the board.

(31) "Resource Protection Area (RPA) 1" — Areas within the aquatic preserves which have resources of the highest quality and condition for that area. These resources may include, but are not limited to corals; marine grassbeds; mangrove swamps; salt-water marsh; oyster bars; archaeological and historical sites; endangered or threatened species habitat; and, colonial water bird nesting sites.

(32) "Resource Protection Area 2" — Areas within the aquatic preserves which are in transition with either declining resource protection area 1 resources or new pioneering resources within resource protection area 3.

(33) "Resource Protection Area 3" — Areas within the aquatic preserve that are characterized by the absence of any significant natural resource attributes.

(34) "Riparian rights" means those rights incident to lands bordering upon navigable waters, as recognized by the courts of this state and common law.

(35) "Sale" means a conveyance of interest in lands, by the board, for consideration.

(36) "Scientific values" means the preservation and promotion of certain qualities or features which have scientific significance.

(37) "Shore protection structure" means a type of coastal construction designed to minimize the rate of erosion. Coastal construction includes any work or activity which is likely to have a material physical effect on existing coastal conditions or natural shore processes.

(38) "Sovereignty lands" means those lands including, but not limited to: tidal lands, islands, sandbars, shallow banks, and lands waterward of the ordinary or mean highwater line, to which the State of Florida acquired title on March 3, 1845, by virtue of statehood, and of which it has not since divested its title interest. For the purposes of this rule sovereignty lands shall include all submerged lands within the boundaries of the preserve, title to which is held by the board.

(39) "Spoil" means materials dredged from sovereignty lands which are redeposited or discarded by any means, onto either sovereignty lands or uplands.

(40) "Transfer" means the act of the board by which any interest in lands, including easements, other than sale or lease, is conveyed.

(41) "Utility of the preserve" means fitness of the preserve for the present and future enjoyment of its biological, aesthetic and scientific values, in an essentially natural condition.

(42) "Water dependent activity" means an activity which can only be conducted on, in, over, or adjacent to, water areas because the activity requires direct access to the water body or sovereignty lands for transportation, recreation, energy production or transmission, or source of water and where the use of the water or sovereignty lands is an integral part of the activity.

Specific Authority 258.43(1) FS. Law Implemented 258.37, 258.43(1) FS. History—New 2-25-81. Amended 6-7-85. Formerly 16Q-20.03. Transferred from 16Q-20.003.

18-20.004 Management Policies, Standards and Criteria. The following management policies, standards and criteria are supplemental to Chapter 18-21, Florida Administrative Code (Sovereignty Submerged Lands Management) and shall be utilized in determining whether to approve, approve with conditions or modifications or deny all requests for activities on sovereignty lands in aquatic preserves.

(1) GENERAL PROPRIETARY

(a) In determining whether to approve or deny any request the Board will evaluate each on a case-by-case basis and weigh any factors relevant under Chapter 253 and/or 258, Florida Statutes. The Board, acting as Trustees for all state-owned lands, reserves the right to approve, modify or reject any proposal.

(b) There shall be no further sale, lease or transfer of sovereignty lands except when such sale, lease or transfer is in the public interest (see Section 18-20.004(2) Public Interest Assessment Criteria).

(c) There shall be no construction of seawalls waterward of the mean or ordinary high water line, or filling waterward of the mean or ordinary high water line except in the case of public road and bridge projects where no reasonable alternative exists.

(d) There shall, in no case, be any dredging waterward of the mean or ordinary high water line for the sole or primary purpose of providing fill for any area landward of the mean or ordinary high water line.

(e) A lease, easement or consent of use may be authorized only for the following activities:

1. a public navigation project;

2. maintenance of an existing navigational channel;

3. installation or maintenance of approved navigational aids;

4. creation or maintenance of a commercial/industrial dock, pier or a marina;

5. creation or maintenance of private docks for reasonable ingress and egress of riparian owners;

6. minimum dredging for navigation channels attendant to docking facilities;

7. creation or maintenance of a shore protection structure;

8. installation or maintenance of oil and gas transportation facilities;

9. creation, maintenance, replacement or expansion of facilities required for the provision of public utilities; and

10. other activities which are a public necessity or which are necessary to enhance the quality or utility of the preserve and which are consistent with the act and this chapter.

(f) For activities listed in paragraphs 18-20.004(1)(e)1.—10. above, the activity shall be

designed so that the structure or structures to be built in, on or over sovereignty lands are limited to structures necessary to conduct water dependent activities.

(g) For activities listed in paragraphs 18-20.004(1)(e)7., 8., 9. and 10. above, it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve.

(h) The use of state-owned lands for the purpose of providing private or public road access to islands where such access did not previously exist shall be prohibited. The use of state-owned lands for the purpose of providing private or public water supply to islands where such water supply did not previously exist shall be prohibited.

(i) Except for public navigation projects and maintenance dredging for existing channels and basins, any areas dredged to improve or create navigational access shall be incorporated into the preempted area of any required lease or be subject to the payment of a negotiated private easement fee.

(j) Private residential multi-slip docking facilities shall require a lease.

(k) Aquaculture and beach renourishment activities which comply with the standards of this rule chapter and Chapter 16-21, Florida Administrative Code, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(l) Other uses of the preserve, or human activity within the preserve, although not originally contemplated, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(2) PUBLIC INTEREST ASSESSMENT CRITERIA

In evaluating requests for the sale, lease or transfer of interest, a balancing test will be utilized to determine whether the social, economic and/or environmental benefits clearly exceed the costs.

(a) GENERAL BENEFIT/COST CRITERIA:

1. any benefits that are balanced against the costs of a particular project shall be related to the affected aquatic preserve;

2. in evaluating the benefits and costs of each request, specific consideration and weight shall be given to the quality and nature of the specific aquatic preserve. Projects in the less developed, more pristine aquatic preserves such as Apalachicola Bay shall be subject to a higher standard than the more developed urban aquatic preserves such as Boca Ciega Bay; and,

3. for projects in aquatic preserves with adopted management plans, consistency with the management plan will be weighed heavily when determining whether the project is in the public interest.

(b) BENEFIT CATEGORIES:

1. public access (public boat ramps, boatslips, etc.);

2. provide boating and marina services (repair, pumpout, etc.);

3 improve and enhance public health, safety, welfare, and law enforcement;

4. improved public land management;

5. improve and enhance public navigation;

6. improve and enhance water quality;

7. enhancement/restoration of natural habitat and functions; and

8. improve/protect endangered/threatened/unique species.

(c) COSTS:

1. reduced/degraded water quality;

2. reduced/degraded natural habitat and function;

3. destruction, harm or harassment of endangered or threatened species and habitat;

4. preemption of public use;

5. increasing navigational hazards and congestion;

6. reduced/degraded aesthetics; and

7. adverse cumulative impacts.

(d) EXAMPLES OF SPECIFIC BENEFITS:

1. donation of land, conservation easements, restrictive covenants or other title interests in or contiguous to the aquatic preserve which will protect or enhance the aquatic preserve;

2. providing access or facilities for public land management activities;

3. providing public access easements and/or facilities, such as beach access, boat ramps, etc.;

4. restoration/enhancement of altered habitat or natural functions, such as conversion of vertical bulkheads to riprap and/or vegetation for shoreline stabilization or re-establishment of shoreline or submerged vegetation;

5. improving fishery habitat through the establishment of artificial reefs or other such projects, where appropriate;

6. providing sewage pumpout facilities where normally not required, in particular, facilities open to the general public;

7. improvements to water quality such as removal of toxic sediments, increased flushing and circulation, etc.;

8. providing upland dry storage as an alternative to wetslip; and

9. marking navigation channels to avoid disruption of shallow water habitats.

(3) RESOURCE MANAGEMENT

(a) All proposed activities in aquatic preserves having management plans adopted by the Board must demonstrate that such activities are consistent with the management plan.

(b) No drilling of oil, gas or other such wells shall be allowed.

(c) Utility cables, pipes and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only

structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that activity may be beneficial to, or at a minimum, not harmful to the quality and utility of the preserve.

(4) RIPARIAN RIGHTS

(a) None of the provisions of this rule shall be implemented in a manner that would unreasonably infringe upon the traditional, common law and statutory riparian rights of upland riparian property owners adjacent to sovereignty lands.

(b) The evaluation and determination of the reasonable riparian rights of ingress and egress for private, residential multi-slip docks shall be based upon the number of linear feet of riparian shoreline.

(c) For the purposes of this rule, a private, residential, single docking facility which meets all the requirements of Rule 18-20.004(5) shall be deemed to meet the public interest requirements of Rule 18-20.004(1)(b), Florida Administrative Code. However, the applicants for such docking facilities must apply for such consent and must meet all of the requirements and standards of this rule chapter.

(5) STANDARDS AND CRITERIA FOR DOCKING FACILITIES

(a) All docking facilities, whether for a single or multi-slip residential or commercial, shall be subject to the following standards and criteria:

1. no dock shall extend waterward of the mean or ordinary high water line more than 500 feet or 20 percent of the width of the waterbody at that particular location whichever is less;

2. certain docks may fall within areas of special or unique importance. These areas may be of significant biological, scientific, historic and/or aesthetic value and require special management considerations. Modifications may be more restrictive than the normally accepted criteria. Such modifications shall be determined on a case-by-case analysis, and may include, but shall not be limited to changes in location, configuration, length, width and height;

3. the number, lengths, drafts and types of vessels allowed to utilize the proposed facility may also be stipulated; and

4. where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for the protection and enhancement of the aquatic preserve shall prevail.

(b) Private residential single docks shall conform to the following specific design standards and criteria:

1. any main access dock shall be limited to a maximum width of four (4) feet;

2. the dock decking design and construction will insure maximum light penetration, with full consideration of safety and practicality;

3. the dock will extend out from the shoreline no further than to a maximum depth of minus four (− 4) feet (mean low water);

4. when the water depth is minus four (− 4) feet (mean low water) at an existing bulkhead the maximum dock length from the bulkhead shall be 25 feet, subject to modifications accommodating shoreline vegetation overhang;

5. wave break devices, when necessary, shall be designed to allow for maximum water circulation and shall be built in such a manner as to be part of the dock structure;

6. terminal platform size shall be no more than 160 square feet; and

7. dredging to obtain navigable water depths in conjunction with private residential, single dock applications is strongly discouraged.

(c) Private residential multi-slip docks shall conform to the following specific design standards and criteria:

1. the area of sovereignty, submerged land preempted by the docking facility shall not exceed the square footage amounting to ten times the riparian waterfront footage of the affected waterbody of the applicant, or the square footage attendant to providing a single dock in accordance with the criteria for private residential single docks, whichever is greater. A conservation easement or other such use restriction acceptable to the Board must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights of ingress and egress for additional docking facilities;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Section 258.42(3)(e)1., Florida Statutes, while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. docking facilities shall only be approved in locations having adequate existing water depths in the boat mooring, turning basin, access channels, and other such areas which will accommodate the proposed boat use in order to insure that a minimum of one foot clearance is provided between the deepest draft of a vessel and the bottom at mean low water;

4. main access docks and connecting or cross walks shall not exceed six (6) feet in width;

5. terminal platforms shall not exceed eight (8) feet in width;

6. finger piers shall not exceed three (3) feet in width, and 25 feet in length;

7. pilings may be utilized as required to provide adequate mooring capabilities; and

8. the following provisions of Rule 18-20.004(5)(d) shall also apply to private residential multi-slip docks.

(d) Commercial, industrial and other revenue generating/income related docking facilities shall conform to the following specific design standards and criteria:

1. docking facilities shall only be located in or near areas with good circulation, flushing and adequate water depths;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Sections 258.42(3)(e)1., Florida Statutes; while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. the docking facilities shall not be located in Resource Protection Area 1 or 2; however, main access docks may be allowed to pass through Resource Protection Area 1 or 2, that are located along the shoreline, to reach an acceptable Resource Protection Area 3, provided that such crossing will generate minimal environmental impact;

4. beginning July 1, 1986 new docking facilities may obtain a lease only where the local governments have an adopted marina plan and/or policies dealing with the siting of commercial/industrial and private, residential, multi-slip docking facilities in their local government comprehensive plan;

5. the siting of the docking facilities shall also take into account the access of the boat traffic to avoid marine grassbeds or other aquatic resources in the surrounding areas;

6. the siting of new facilities within the preserve shall be secondary to the expansions of existing facilities within the preserve when such expansion is consistent with the other standards;

7. the location of new facilities and expansion of existing facilities shall consider the use of upland dry storage as an alternative to multiple wet-slip docking;

8. marina siting will be coordinated with local governments to insure consistency with all local plans and ordinances;

9. marinas shall not be sited within state designated manatee sanctuaries; and

10. in any areas with known manatee concentrations, manatee warning/notice and/or speed limit signs shall be erected at the marina and/or ingress and egress channels, according to Florida Marine Patrol specifications.

(c) Exceptions to the standards and criteria listed in Rule 18-20.004(5), Florida Administrative Code, may be considered, but only upon demonstration by the applicant that such exceptions are necessary to insure reasonable riparian ingress and egress.

(6) MANAGEMENT AGREEMENTS

The board may enter into management agreements with local agencies for the administration and enforcement of standards and criteria for private residential single docks.

(7) In addition to the policies, standards and criteria delineated in subsections (1) through (6), the provisions of the following management plans apply to specific aquatic preserves and are incorporated herein by reference. Where regulatory criteria in 18-20, F. A. C., may differ with specific policies in the management plans listed herein, the general rule criteria shall prevail.

	Date Adopted
Alligator Harbor	September 23, 1986
Banana River	September 17, 1985
Cockroach Bay	April 21, 1987
Estero Bay	September 6, 1983
Charlotte Harbor (Cape Haze, Gasparilla Sound-Charlotte Harbor, Matlacha Pass and Pine Island Sound)	May 18, 1983
Indian River-Malabar to Vero Beach	January 21, 1986
Indian River Lagoon (Vero Beach to Fort Pierce and Jensen Beach to Jupiter Inlet)	January 22, 1985
Loxahatchee River-Lake Worth Creek	June 12, 1984
Nassau River-St. Johns River Marshes and Fort Clinch State Park	April 22, 1986
North Fork of the St. Lucie River	May 22, 1984
St. Joseph Bay	June 2, 1987
St. Martins Marsh	September 9, 1987
Terra Ceia	April 21, 1987
Wekiva River	August 25, 1987

Specific Authority 258.43(1) FS. Law Implemented 258.41, 258.42, 258.43(1), 258.44 FS. History—New 2-25-81, Amended 6-7-85, Formerly 16Q-20.004, Transferred from 16Q-20.004, Amended 9-4-88.

18-20.005 Uses, Sales, Leases, or Transfer of Interests in Lands, or Materials, Held by the Board.

Specific Authority 258.43(1) FS. Law Implemented 253.02, 253.12, 258.42 FS. History—New 2-25-81, Repealed 6-7-85, Formerly 16Q-20.05, Transferred from 16Q-20.005.

18-20.006 Cumulative Impacts. In evaluating applications for activities within the preserves or which may impact the preserves, the department recognizes that, while a particular alteration of the preserve may constitute a minor change, the cumulative effect of numerous such changes often results in major impairments to the resources of the preserve. Therefore, the department shall evaluate a particular site for which the activity is proposed with the recognition that the activity may, in conjunction with other activities adversely affect the preserve which is part of a complete and interrelated system. The impact of a proposed activity shall be considered in light of its cumulative impact on the preserve's natural system. The department shall include as a part of its evaluation of an activity:

(1) The number and extent of similar human actions within the preserve which have previously affected or are likely to affect the preserve, whether considered by the department under its current authority or which existed prior to or since the enactment of the Act; and

(2) The similar activities within the preserve

which are currently under consideration by the department; and

(3) Direct and indirect effects upon the preserve and adjacent preserves, if applicable, which may reasonably be expected to result from the activity; and

(4) The extent to which the activity is consistent with management plans for the preserve, when developed; and

(5) The extent to which the activity is permissible within the preserve in accordance with comprehensive plans adopted by affected local governments, pursuant to section 163.3161, F.S., and other applicable plans adopted by local, state, and federal governmental agencies;

(6) The extent to which the loss of beneficial hydrologic and biologic functions would adversely impact the quality or utility of the preserve; and

(7) The extent to which mitigation measures may compensate for adverse impacts.

Specific Authority 258.43(1) FS. Law Implemented 258.36, 258.43, 258.44 FS. History—New 2-25-81, Formerly 16Q-20.006, Transferred from 16Q-20.006.

18-20.007 Protection of Riparian Rights.

Specific Authority 258.43(1) FS. Law Implemented 258.123, 258.124(8), 258.44 FS. History—New 2-25-81, Repealed 8-7-85, Formerly 16Q-20.07, Transferred from 16Q-20.007.

18-20.008 Inclusion of Lands, Title to Which Is Not Vested in the Board, in a Preserve.

(1) Lands and water bottoms which are within designated aquatic preserve boundaries, or adjacent thereto and which are owned by other governmental agencies, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the agency.

(2) Lands and water bottoms which are within designated aquatic preserve boundaries or adjacent thereto, and which are in private ownership, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the owner.

(3) The appropriate instrument shall be either a dedication in perpetuity, or a lease. Such lease shall contain the following conditions:

(a) The term of the lease shall be for a minimum period of ten years.

(b) The board shall have the power and duty to enforce the provisions of each lease agreement, and shall additionally have the power to terminate any lease if the termination is in the best interest of the aquatic preserve system, and shall have the power to include such lands in any agreement for management of such lands.

(c) The board shall pay no more than $1 per year for any such lease.

Specific Authority 258.43(1) FS. Law Implemented 258.40, 258.41 FS. History—New 2-25-81, Formerly 16Q-20.08, Transferred from 16Q-20.008.

18-20.009 Establishment or Expansion of Aquatic Preserves.

(1) The board may expand existing preserves or establish additional areas to be included in the aquatic preserve system, subject to confirmation by the legislature.

(2) The board may, after public notice and public hearing in the county or counties in which the proposed expanded or new preserve is to be located, adopt a resolution formally setting aside such areas to be included in the system.

(3) The resolution setting aside an aquatic preserve area shall include:

(a) A legal description of the area to be included. A map depicting the legal description shall also be attached.

(b) The designation of the type of aquatic preserve.

(c) A general statement of what is sought to be preserved.

(d) A statement that the area established as a preserve shall be subject to the management criteria and directives of this chapter.

(e) A directive to develop a natural resource inventory and a management plan for the area being established as an aquatic preserve.

(4) Within 30 days of the designation and establishment of an aquatic preserve, the board shall record in the public records of the county or counties in which the preserve is located a legal description of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41 FS. History—New 2-25-81, Formerly 16Q-20.09, Transferred from 16Q-20.009.

18-20.010 Exchange of Lands. The board in its discretion may exchange lands for the benefit of the preserve, provided that:

(1) In no case shall an exchange result in any land or water area being withdrawn from the preserve; and

(2) Exchanges shall be in the public interest and shall maintain or enhance the quality or utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41(5), 258.42(1) FS. History—New 2-25-81, Formerly 16A-20.10, Transferred from 16Q-20.010.

18-20.011 Gifts of Lands. The board in its discretion may accept any gifts of lands or interests in lands within or contiguous to the preserve to maintain or enhance the quality and utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.42(5) FS. History—New 2-25-81, Formerly 16Q-20.11, Transferred from 16Q-20.011.

18-20.012 Protection of Indigenous Life Forms. The taking of indigenous life forms for sale or commercial use is prohibited, except that this prohibition shall not extend to the commercial taking of fin fish, crustacea or mollusks, except as prohibited under applicable laws, rules or regulations. Members of the public may exercise their rights to fish, so long as not contrary to other statutory and regulatory provisions controlling such activities.

Specific Authority 258.43(1) FS. Law Implemented 258.43(1) FS. History—New 2-25-81, Formerly 16Q-20.12, Transferred from 16Q-20.012.

18-20.013 Development of Resource Inventories and Management Plans for Preserves.

(1) The board authorizes and directs the division to develop a resource inventory and management plan for each preserve.

(2) The division may perform the work to develop the inventories and plans, or may enter into agreements with other persons to perform the work. In either case, all work performed shall be subject to board approval.

Specific Authority 258.43(1) FS. Law Implemented 253.03(7), 253.03(8) FS. History—New 2-25-81, Amended 6-7-85, Formerly 16Q-20.13, Transferred from 16Q-20.013.

18-20.014 Enforcement. The rules shall be enforced as provided in Section 258.46.

Specific Authority 258.43(1) FS. Law Implemented 258.46 FS. History—New 2-25-81, Formerly 16Q-20.14, Transferred from 16Q-20.014.

18-20.015 Application Form.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Repealed 6-7-85, Formerly 16Q-20.15, Transferred from 16Q-20.015.

18-20.016 Coordination with Other Governmental Agencies. Where a Department of Environmental Regulation permit is required for activities on sovereignty lands the department will coordinate with the Department of Environmental Regulation to obtain a copy of the joint Department of Army/Florida Department of Environmental Regulation permit application and the biological survey. The information contained in the joint permit application and biological assessment shall be considered by the department in preparing its staff recommendations to the board. The board may also consider the reports of other governmental agencies that have related management or permitting responsibilities regarding the proposed activity.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Formerly 16Q-20.16, Transferred from 16Q-20.016.

18-20.017 Lake Jackson Aquatic Preserve. In addition to the provisions of Rules 18-20.001 through 18-20.016, the following requirements shall also apply to all proposed activities within the Lake Jackson Aquatic Preserve. If any provisions of this Rule are in conflict with any provisions of Rules 18-20.001 through 18-20.016 or Chapter 73-534, Laws of Florida, the stronger provision for the protection or enhancement of the aquatic preserve shall prevail.

(1) No further sale, transfer or lease of sovereignty lands in the preserve shall be approved or consummated by the Board, except upon a showing of extreme hardship on the part of the applicant or when the board shall determine such sale, transfer or lease to be in the public interest.

(2) No further dredging or filling of sovereignty lands of the preserve shall be approved or tolerated by the Board of Trustees except:

(a) Such minimum dredging and spoiling as may be authorized for public navigation projects or for preservation of the lake according to the expressed intent of Chapter 73-534, Laws of Florida; and

(b) Such other alteration of physical conditions as may be necessary to enhance the quality or utility of the preserve.

(3) There shall be no drilling of wells, excavation for shell or minerals, and no erection of structures (other than docks), within the preserve, unless such activity is associated with activity authorized by Chapter 73-534, Laws of Florida.

(4) The Board shall not approve the relocations of bulkhead lines within the preserve.

(5) Notwithstanding other provisions of this act, the board may, respecting lands lying within the Lake Jackson basin:

(a) Enter into agreements for and establish lines delineating sovereignty and privately owned lands;

(b) Enter into agreements for the exchange and exchange sovereignty lands for privately owned lands;

(c) Accept gifts of land within or contiguous to the preserve.

Specific Authority 258.39(26) FS. Law Implemented 258.39(26), 258.43 FS. History—New 6-7-85, Formerly 16Q-20.017, Transferred from 16Q-20.017.

APPENDIX B

MEAN VALUES OF WATER QUALITY PARAMETERS MONITORED AT UPPER ROCKY BAYOU SAMPLE STATION, SEPTEMBER 1985 - AUGUST 1986 (LIVINGSTON, 1986).

	MEAN SURFACE	MEAN BOTTOM	RANGE SURFACE	RANGE BOTTOM
TEMPERATURE (°C)	23.1	22.8	10.8-31.0	13.0-31.5
SALINITY (PPT)	8.3	20.5	0.0-16.8	12.0-28.2
DISSOLVED O_2 (PPM)	7.7	5.0	6.3-9.6	1.2-7.9
pH	7.3	7.9	5.4-8.1	7.7-8.1
TURBIDITY (NTU)	2.8	3.8	1.0-10.0	2.0-10.0
COLOR (PT-COU)	56.7	36.4	10-180	15-70
FECAL COLIFORM (COUNT/100mL)	42.0	0.0	0-500	0.0
TOTAL COLIFORM (COUNT/100mL)	1222	46.0	0.0-13000	0.0-200
CHEMICAL OXYGEN DEMAND (mg/m^3)	97.0	114	0-275	25-190
AMMONIA (mg/L)	0.072	0.073	0.007-0.670	0.007-0.581
NITRITE (mg/L)	0.007	0.009	0.0-0.021	0.0-0.021
NITRATE (mg/L)	0.085	0.075	0.016-0.576	0.023-0.434
TKN (mg/L)	0.482	0.867	0.203-1.111	0.357-1.258
TOTAL NITROGEN (mg/L)	0.592	0.924	0.309-1.191	0.479-1.296
ORTHO-PHOSPHATE (mg/L)	0.002	0.002	0.001-0.003	0.001-0.005
TOTAL PHOSPHATE (mg/L)	0.009	0.011	0.001-0.032	0.001-0.044
P:N	0.018	0.023	0.002-0.072	0.001-0.090

Vallisneria americana
Tapegrass

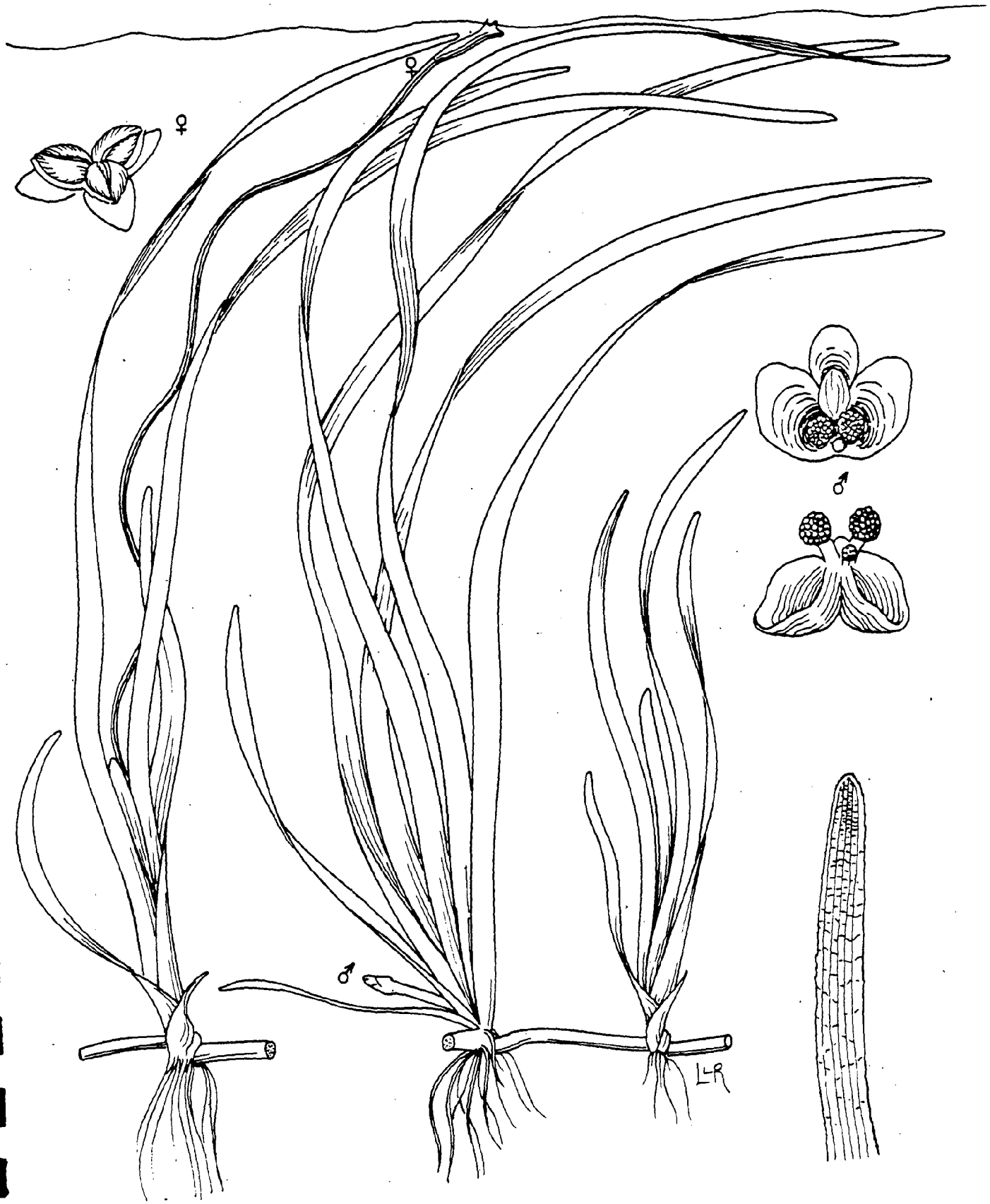

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Scirpus californicus
Giant bulrush

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Phragmites australis
Common reed

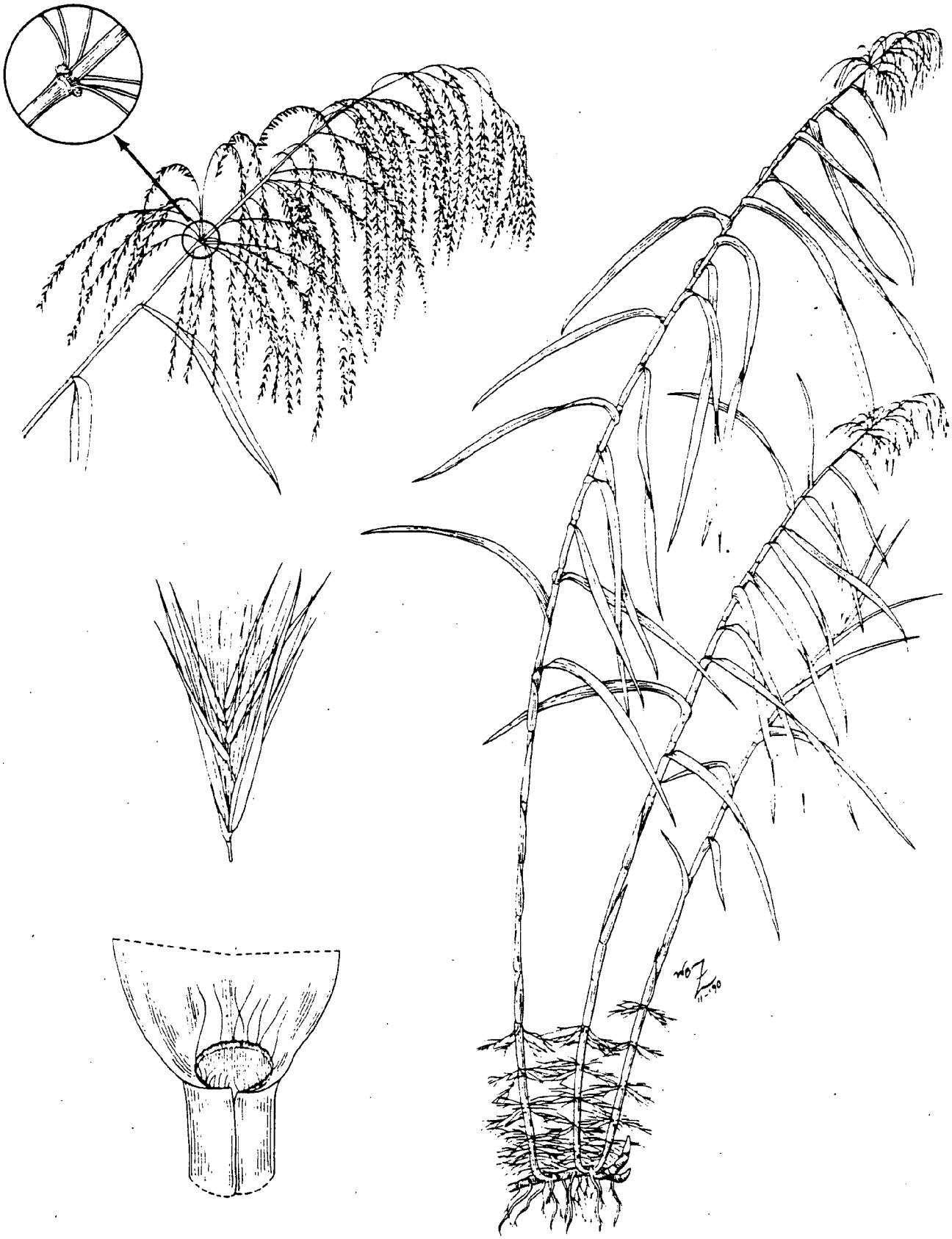

illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Juncus effusus
Soft rush

illustration provided by:
IFAS, Center for Aquatic Plants
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